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ABSTRACT

This instructor guide and the corresponding student reference contain 7 units that include 30 lessons for a course in floristry. The lessons topics are as follows: the floristry industry, plant identification, post-harvest handling, the mechanics of floral design, basic principles of floral design, construction of various types of designs, and shop operations. The instructor's guide contains the following: objectives, competencies, motivational techniques, teaching procedures, other activities, activity sheets, transparency masters, evaluations, answers to evaluations and activity sheets, references and teaching aids, materials and equipment lists, a teaching calendar, and a student competency profile. Five appendixes include forms for florist shop recordkeeping, information on the care of plants, and information on drying flowers and foliage. The student reference consists of information sheets and illustrations for the lessons. (KC)

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ED 404 524

Floristry

Instructor Guide

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Instructor Guide

FLORISTRY

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FOREWORD

The development of the *Floristry* curriculum guide is the result of suggestions by the MVATA Teaching Aids Committee. The Floristry Advisory Committee suggested the topics to be included and reviewed the materials.

This seven-unit curriculum contains 30 lessons. The instructor's guide includes: objectives, competencies, motivational techniques, teaching procedures, other activities, activity sheets, transparency masters, evaluations, answers to evaluations and activity sheets, references and teaching aids, and materials and equipment. Topics include: the floristry industry, plant identification, post-harvest handling, the mechanics of floral design, basic principles of floral design, construction of various types of designs, and shop operations. One copy of the student reference is packaged with the instructor's guide. Additional copies of the student reference can be purchased separately. Forms for florist shop recordkeeping have been included as Appendix A. These forms can be used by the instructor to keep records for the class. Appendices B, C, and D include information on the care of plants. Appendix E contains information on drying flowers and foliage.

During the summer of 1981, the Missouri State Board of Education formally adopted the concept of "Instructional Management Systems" (IMS) as a priority for the 1981-82 school year. The Missouri Commissioner of Education described the IMS concept as a practical way of "organizing for excellence" in education. To meet the demand for greater productivity and accountability, the director of Vocational Education applied the elements of IMS to form the Vocational Instructional Management System (VIMS). The VIMS process provides a framework to use in planning and organizing to assure excellence in Missouri's vocational education system by focusing greater attention on the management of teaching and learning.

This guide incorporates the needed components to aid agriculture teachers in the implementation of VIMS. For ease of use, performance objectives and competencies have been included at the beginning of the guide as well as incorporated within each lesson. A competency profile has been provided in the front of the guide for convenient record keeping.

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Secondary Education

FLORISTRY

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OBJECTIVES

UNIT I - FLORISTRY INDUSTRY
1. The student will be able to identify the structure of the floristry industry.
2. The student will be able to describe career opportunities in floristry.

UNIT II - PLANT IDENTIFICATION
1. The student will be able to describe the factors involved in identifying plants.
2. The student will be able to identify plants and plant parts used in the florist industry.

UNIT III - POST-HARVEST HANDLING
1. The student will be able to describe how plant processes affect shelf life.
2. The student will be able to demonstrate the techniques of processing cut plant materials.
3. The student will be able to demonstrate care of potted plants.

UNIT IV - MECHANICS OF FLORAL DESIGN
1. The student will be able to identify and safely use tools and supplies.
2. The student will be able to construct bows using basic ribbon widths.
3. The student will be able to select and prepare appropriate containers.
4. The student will be able to perform basic wiring and taping techniques.
5. The student will be able to package flowers and arrangements for delivery.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN
1. The student will be able to identify basic principles of floral arranging and elements of design.
2. The student will be able to identify design shapes.

UNIT VI - TYPES OF DESIGNS
1. The student will be able to identify how floral designs are used.
2. The student will be able to construct flowers to wear.
3. The student will be able to construct a bud vase.
4. The student will be able to construct a one-sided arrangement.
5. The student will be able to construct a centerpiece.
6. The student will be able to identify the uses of wreaths and construct a wreath using evergreens.
7. The student will be able to construct a silk arrangement.
8. The student will be able to construct a dried arrangement.
9. The student will be able to construct a dish garden.

UNIT VII - SHOP OPERATIONS
1. The student will be able to demonstrate sales transactions.
2. The student will be able to deliver a floral arrangement.
3. The student will be able to calculate the price of floral products.
4. The student will be able to assist in completing an inventory.
5. The student will be able to create displays.
6. The student will be able to maintain the floral shop area.
7. The student will be able to prepare an advertisement.

COMPETENCIES

UNIT I - FLORISTRY INDUSTRY
1. Identify the structure of the floristry industry.
2. Describe career opportunities in floristry.

UNIT II - PLANT IDENTIFICATION

1. Describe the factors involved in identifying plants.
2. Identify plants and plant parts used in the floristry industry.

UNIT III - POST-HARVEST HANDLING

1. Describe how plant processes affect shelf life.
2. Demonstrate techniques for the processing of cut plant materials.
3. Demonstrate the care of potted plants.

UNIT IV - MECHANICS OF FLORAL DESIGN

1. Identify and safely use tools and supplies.
2. Construct bows using basic ribbon widths.
3. Select and prepare appropriate containers.
4. Perform basic wiring and taping techniques.
5. Package flowers and arrangements for delivery.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

1. Identify basic principles of floral arranging and elements of design.
2. Identify design shapes.

UNIT VI - TYPES OF DESIGNS

1. Identify how floral designs are used.
2. Construct flowers to wear.
3. Construct a bud vase.
4. Construct a one-sided arrangement.
5. Construct a centerpiece.
6. Construct an evergreen wreath.
7. Construct a silk arrangement.
8. Construct a dried arrangement.
9. Construct a dish garden.

UNIT VII - SHOP OPERATIONS

1. Demonstrate a sales transaction.
2. Deliver a floral arrangement.
3. Calculate the price of floral products.
4. Assist in completing an inventory.
5. Create displays.
6. Maintain the floral shop area.
7. Prepare an advertisement.

EVALUATION

1. Give short, objective tests following each lesson and a more in-depth objective test at the conclusion of the unit.

2. Observe the changes in behavior as evidence of the improved ability of students to deal with problems in this unit using backgound information acquired from earlier units.

3. Observe students' attempts to solve similar problems in their supervised agricultural experience programs.

REFERENCES AND MATERIALS

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   Floristry (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996.

2. Teacher References

   a. Books

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2) Boor, Mary Ann. *Math for Horticulture*. Columbus: Ohio Agricultural Education Curriculum Materials Service, 1994.

3) Graber, Debra Terry. *Fresh Flowers: Book 2*. Lansing: John Henry Co., 1989.

4) Griffiths, Mark. *Index of Garden Plants*. Portland, OR: Timber Press, 1994.

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7) Huxley, Anthony et al. *Reader's Digest Success with House Plants*. Pleasantville, NY: The Reader's Digest Association Inc., 1979.

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9) L. H. Bailey Hortorium. Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. New York: MacMillan Publishing Co., Inc., 1976.

10) Liesveld, John H. *The Retail Florist*. 3rd ed. New York: Macmillan, 1957.

11) Mercer, Robert J.; William J. Brown, Jr.; Gene M. Love; Richard F. Stinson. *Retail Flower Shop Operation and Management*. Vol. 9, #1s. University Park: Pennsylvania State University, 1968.

12) Morley, Jim, ed. *The Professional Floral Design Manual*. 2nd ed. Oklahoma City: American Floral Services, 1990.

13) Pfahl, Peter B.; P. Blair Pfahl, Jr. *The Retail Florist Business*. 4th ed. Danville, IL: Interstate Printers & Publishers, Inc., 1983.

14) Redbook Florist Services Editorial Advisory Committee. *Advanced Floral Design*. Paragould, AR: Redbook Florist Services, 1992.

15) Redbook Florist Services Editorial Advisory Committee. *Basic Floral Design*. 2nd ed. Paragould, AR: Redbook Florist Services, 1993.

16) Redbook Florist Services Editorial Advisory Committee. *Floral Design for the Holidays*. Paragould, AR: Redbook Florist Services, 1991.

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20) Redbook Florist Services Editorial Advisory Committee. *Visual Merchandising for the Retail Florist.* Paragould, AR: Redbook Florist Services, 1992.

21) Reiley, Edward H.; Carroll L. Shry. *Introductory Horticulture.* 3rd ed. Albany: Delmar Publishers Inc., 1988.

22) Rodekohr, Sherie; Debi Waeckerle. *Land and Turf Management.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.

23) Smith, James E. *Flower Arranging: A Manual.* Columbia, MO: Lucas Brothers, 1972.

24) Society of American Florists and Ornamental Horticulturalists. *The Care and Handling of Flowers and Plants.* Alexandria, VA: Society of American Florists and Ornamental Horticulturalists, 1976.

25) Stratman, Teresa. *Retail Floriculture, Book 1.* Columbus: Ohio State University, 1976.

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28) Woodhull, James; Valerie Brosey; Petel Kreysa. *A Catalog of Performance Objectives and Performance Guides for the Floriculture Worker, Retail Flower Shop Salesperson, and Floral Designer.* College Park: University of Maryland Department of ITOE, 1984.

b. Pamphlets, magazines, etc.

1) "Floral Industry Trends." *Flowers&* Jan. 1993: 88, 90, 92, 94.

2) United States. Bureau of the Census. Economic and Statistic Administration. U.S. Department of Commerce. *1992 Census of Agriculture.* Vol. 1, pt. 25. Washington: GPO, 1994.

3) University Extension agricultural publications, University of Missouri-Columbia

a)	GO6510:	Caring for House Plants
b)	GO6511:	Care of Flowering Potted Plants, Part I
c)	GO6512:	Care of Flowering Potted Plants, Part II
d)	GO6513:	Care of Flowering Potted Plants, Part III
e)	GO6515:	Lighting Indoor House Plants
f)	GO6540:	Drying Flowers and Foliage for Arrangements

3. Audiovisuals (available from the Missouri Vocational Resource Center, University of Missouri-Columbia, 10 London Hall, Columbia, MO 65211)

   a. *Floral Design - From Concepts to Beauty.* Video. Houston Livestock Show and Rodeo Association, 1988.

   b. *Floriculture Plant Identification.* Slide set and script. Instructional Materials Laboratory, 1991.

   c. *Flower Arranging Is for Everyone.* Video. Flora Video, 1986.

   d. *Quick and Easy Vase Arrangements.* Video. Rittmers Floral School, 1987.

4. Trade Associations and Publications

   a. Associations

      1) American Institute of Floral Designers (AIFD)
      720 Light Street
      Baltimore, MD 21230
      (301) 752-3320

      2) Society of American Florists (SAF)
      1601 Duke Street
      Alexandria, VA 22341
      (800) 336-4743 or (703) 836-8700
      Publishes *Floral Management* as well as *Dateline: Washington*, which is done in conjunction with the American Floral Marketing Council and the Florist Information Committee
      Divisions of the SAF: American Academy of Floriculture (AAF), American Floral Marketing Council (AFMC), and Professional Floral Commentators International (PFCI)

      3) Redbook Master Consultants (RMC)
      P.O. Box 1706
      3307 E. Kingshighway
      Paragould, AR 72451
      (800) 643-0100

   b. Publications

      1) *Floral Finance*
      Floral Finance Inc.
      8801 S. Yale, Suite 400
      Tulsa, OK 74137
      (800) 722-9934 or (918) 491-9933
      Published by American Floral Services Inc.

      2) *Floral Mass Marketing* and *Flower News*
      Cenflo Inc.
      549 W. Randolph Street
      Chicago, IL 60661
      (312) 236-8648

3) *Florist*
Florists' Transworld Delivery Associaton
29200 Northwestern Highway
P.O. Box 2227
Southfield, MI 48037
(313) 355-9300

4) *Florists' Review*
Florists' Review Enterprises Inc.
P.O. Box 4368
Topeka, KS 66604
(913) 266-0888

5) *Flowers&*
Teleflora
Teleflora Plaza, Suite 260
12233 W. Olympic Blvd.
Los Angeles, CA 90064
(310) 826-5253

6) *Holland Flower*
Flower Council of Holland
250 West 57th Street
New York, NY 10019
(212) 307-1818

7) *PFD (The Professional Floral Designer)* and *The Retail Florist*
Attn: Promotional Services
American Floral Services Inc.
P.O. Box 12309
Oklahoma City, OK 73157
(800) 456-7890

8) *Supermarket Floral*
Vance Publishing
7950 College Blvd.
Overland Park, KS 66210
(913) 451-2200

TEACHING CALENDAR

	Periods for Classroom Instruction/Activities	Length for Activity Sheets (AS) and Job Sheets (JS)
Unit I, Lesson 1	2	No activity
Unit I, Lesson 2	2	AS 2.1 30 min.
Unit II, Lesson 1	4	No activity
Unit II, Lesson 2	10	AS 2.1 30 min.
		AS 2.2 30 min.
Unit III, Lesson 1	2	No activity
Unit III, Lesson 2	3	No activity
Unit III, Lesson 3	3	No activity
Unit IV, Lesson 1	2	AS 1.1 30 min.
Unit IV, Lesson 2	3	JS 2.1 1 class period
Unit IV, Lesson 3	2	JS 3.1 20 min.
		JS 3.2 30 min.
		JS 3.3 30 min.
Unit IV, Lesson 4	2	JS 4.1 1 class period
		JS 4.2 30 min.
Unit IV, Lesson 5	3	JS 5.1 30 min.
		JS 5.2 30 min.
		JS 5.3 15 min.
		JS 5.4 40 min.
		JS 5.5 20 min.
Unit V, Lesson 1	3	No activity
Unit V, Lesson 2	2	No activity
Unit VI, Lesson 1	2	No activity
Unit VI, Lesson 2	4	JS 2.1 3 class periods
Unit VI, Lesson 3	2	JS 3.1 1 class period
Unit VI, Lesson 4	4	JS 4 1 3 class periods
Unit VI, Lesson 5	4	JS 5.1 3 class periods

	Periods for Classroom Instruction/Activities	Length for Activity Sheets (AS) and Job Sheets (JS)	
Unit VI, Lesson 6	6	JS 6.1	4.5 class periods
Unit VI, Lesson 7	2	JS 7.1	1 class period
Unit VI, Lesson 8	2	JS 8.1	1 class period
Unit VI, Lesson 9	3	JS 9.1	1.5 class periods
Unit VII, Lesson 1	4	A.S 1.1	15 min.
Unit VII, Lesson 2	2	JS 2.1	30 min.
		JS 2.2	1 class period
Unit VII, Lesson 3	2-3	AS 3.1	30 min.
Unit VII, Lesson 4	1	No activity	
Unit VII, Lesson 5	3	A.S 5.1	1 class period
Unit VII, Lesson 6	1	No activity	
Unit VII, Lesson 7	3	A.S 7.1	1 class period

FLORISTRY
Competency Profile

Directions: Evaluate the student by checking the appropriate number or letter to indicate the degree of competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:
3 Mastered - can work independently with no supervision
2 Requires Supervision - can perform job completely with limited supervision
1 Not Mastered - requires instruction and close supervision
N No Exposure - no experience or knowledge in this area

3	2	1	N	**A. Floristry Industry**
				1. Identify the structure of the floristry industry (A001)
				2. Describe career opportunities in floristry (A002)
				Other: ______________
				______________

3	2	1	N	**B. Plant Identification**
				1. Describe the factors involved in identifying plants (B001)
				2. Identify plants and plant parts used in the floristry industry (B002)
				Other: ______________
				______________

3	2	1	N	**C. Post-Harvest Handling**
				1. Describe how plant processes affect shelf life (C001)
				2. Demonstrate techniques for the processing of cut plant materials (C002)
				3. Demostrate the care of potted plants (C003)
				Other: ______________
				______________

3	2	1	N	**D. Mechanics of Floral Design**
				1. Identify and safely use tools and supplies (D001)
				2. Construct bows using basic ribbon widths (D002)
				3. Select and prepare appropriate containers (D003)
				4. Perform basic wiring and taping techniques (D004)
				5. Package flowers and arrangements for delivery (D005)
				Other: ______________
				______________

3	2	1	N	**E. Basic Principles of Floral Design**
				1. Identify basic principles of floral arranging and elements of design (E001)
				2. Identify design shapes (E002)
				Other: ______________
				______________

3	2	1	N	**F. Types of Designs**
				1. Indentify how floral designs are used (F001)
				2. Construct flowers to wear (F002)
				3. Construct a bud vase (F003)
				4. Constuct a one-sided arrangement (F004)
				5. Construct a centerpiece (F005)
				6. Construct an evergreen wreath (F006)
				7. Construct a silk arrangement (F007)
				8. Construct a dried arrangement (F008)
				9. Construct a dish garden (F009)
				Other: ______________
				______________

3	2	1	N	**G. Shop Operations**
				1. Demostrate a sales transaction (G001)
				2. Deliver a floral arrangement (G002)
				3. Calculate the price of floral products (G003)
				4. Assist in completing an inventory (G004)
				5. Create displays (G005)
				6. Maintain the floral shop area (G006)
				7. Prepare an advertisement (G007)
				Other: ______________
				______________

Student Names															
															UNIT I - FLORISTRY INDUSTRY
															1. Identify the structure of the floristry industry.
															2. Describe career opportunities in floristry.
															UNIT II - PLANT IDENTIFICATION
															1. Describe the factors involved in identifying plants.
															2. Identify plants and plant parts used in the florist industry.
															UNIT III - POST-HARVEST HANDLING
															1. Describe how plant processes affect shelf life.
															2. Demonstrate techniques for the processing of cut plant materials.
															3. Demonstrate the care of potted plants.
															UNIT IV - MECHANICS OF FLORAL DESIGN
															1. Identify and safely use tools and supplies.
															2. Construct bows using basic ribbon widths.
															3. Select and prepare appropriate containers.
															4. Perform basic wiring and taping techniques.
															5. Package flowers and arrangements for delivery.
															UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN
															1. Identify basic principles of floral arranging and elements of design.
															2. Identify design shapes.
															UNIT VI - TYPES OF DESIGNS
															1. Identify how floral designs are used.
															2. Construct flowers to wear.
															3. Construct a bud vase.

															4.	Construct a one-sided arrangement.
															5.	Construct a centerpiece.
															6.	Construct an evergreen wreath.
															7.	Construct a silk arrangement.
															8.	Construct a dried arrangement.
															9.	Construct a dish garden.
															UNIT VII - SHOP OPERATIONS	
															1.	Demonstrate a sales transaction.
															2.	Deliver a floral arrangement.
															3.	Calculate the price of floral products.
															4.	Assist in completing an inventory.
															5.	Create displays.
															6.	Maintain the floral shop area.
															7.	Prepare an advertisement.

UNIT I - FLORISTRY INDUSTRY

Lesson 1: Structure of Floristry Industry

Objective: The student will be able to identify the structure of the floristry industry.

Study Questions

1. **How does floristry relate to the floriculture industry?**
2. **What is the path of a floriculture product from producer to retail customer?**
3. **What is the function of a greenhouse grower?**
4. **What is the function of a wholesale florist?**
5. **What is the function of a retail florist?**
6. **How has the floristry industry evolved?**
7. **What are the current trends in floristry?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit I.

UNIT I - FLORICULTURE INDUSTRY

Lesson 1: Structure of Floristry Industry

TEACHING PROCEDURES

A. Introduction

In order to understand the floristry industry, it is important to be familiar with its past, present, and future. This lesson will examine how the floristry industry fits into the three major divisions of floriculture, which are grower, wholesale florist, and retail florist. The major flower production areas, the history and development of floral design, and the importance of floristry in Missouri, the United States, and the world will be explored.

B. Motivation

Display a rose bush (with flowers on it), a cut rose, and a rose in a bud vase or in a corsage. Ask students if they know the meaning of floriculture and how the three major divisions all fit in with the examples.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how floristry and floriculture are related.

   How does floristry relate to the floriculture industry?

   a) Floriculture is the business of growing, harvesting, wholesaling, storing, designing, and selling flowers and potted plants.
   b) Floristry is concerned mainly with the handling and designing of flowers and live plant materials at retail and wholesale levels.

2. Ask students if they know what happens to flowers between the time they are harvested and when they reach the consumer.

   What is the path of a floriculture product from producer to retail customer?

   a) Floriculture products are produced at many sites around the world.
   b) After they are harvested, they may be packed and shipped via ground or air to wholesalers or to brokers who will then sell them to wholesalers. They may also be sent to an auction to be purchased by brokers or wholesalers. Retail florists may purchase floriculture products directly from local growers.
   c) Wholesale markets sell flowers to retail outlets.
   d) The retail florist prepares the plant materials for the customer.

3. Ask students what a greenhouse grower does.

   What is the function of a greenhouse grower?

The greenhouse grower is in the business of producing flowering potted plants, foliage potted plants, cut flowers, and cut foliage.

4. Ask students to describe the function of a wholesale florist.

   What is the function of a wholesale florist?

   The wholesale florist purchases floriculture products from the growers and sells them to the retail florist. Products may also be purchased through floral brokers.

5. Ask students what a retail florist does and how this differs from a wholesale florist.

   What is the function of a retail florist?

   The retail florist arranges or prepares the floriculture product for sale to the general public.

6. Ask students how the floristry industry came into being.

   How has the floristry industry evolved?

   a) Pictures of flowers and flower arrangements can be found in paintings on the walls of Egyptian tombs.
   b) The Romans used wreaths and garlands to decorate their homes. They were especially fond of very fragrant and brightly colored flowers.
   c) In the Renaissance period, flower symbols were used extensively and had many religious associations.
   d) The Baroque period followed the Renaissance in 17th and 18th century Europe. The style of the period is typified by a very elaborate use of flowers and curved lines, with flowers massed and very full.
   e) The Victorian era placed a great emphasis on colors and patterns. It was during this period that flower arranging first became an art, and classes were even taught.
   f) The Oriental style of floral design places importance on the form of individual flowers and the plant material, with line and negative space also being important. Each flower and plant material has meaning.
   g) The art deco style was popular in the U.S. during the 1920s and 1930s. It is distinctive for its strong geometric lines and patterns.
   h) During the 1960s and 1970s, tight geometric forms were popular.

7. Ask students what some of the current trends in the floristry industry are.

   What are the current trends in floristry?

   a) Current trends are toward more service in the average florist shop. The majority of business is through the telephone.
   b) Grocery stores and large department stores are expanding, some with very large and active retail flower shops. These stores have more cash-and-carry or walk-in trade.
   c) The emphasis is shifting towards a more European style - that of having more flowers in the home and in a more casual setting.
      1) Flowers will need to be more easily available
      2) Attractively priced
      3) Plants and cut flowers must last longer and be easier to care for

F. Other Activities

1. Have students collect pictures of flower arrangements and make a notebook of them. Arrangements could be grouped by style or for special occasions (ex. Christmas).

2. If an art museum is nearby, have the students visit it and observe how the flowers are used in various paintings. What style was used for the time period of the painting?

G. Conclusion

Floristry is a division of the floriculture industry. While floriculture is the business of growing, harvesting, storing, designing and selling flowers, floristry is mainly concerned with handling and designing flowers and live plant materials. Throughout human history, flowers and flower arrangements have been used for special occasions. Today, customers are purchasing flower products from florists that are conveniently located. Customers are also demanding plants and cut flowers that last longer and are easier to care for.

H. Competency

Identify the structure of the floristry industry.

I. Answers to Evaluation

1. d
2. a
3. b
4. c
5. a
6. d
7. b
8. c
9. a
10. f
11. e

UNIT I - FLORISTRY INDUSTRY

Name ____________________

Lesson 1: Function and Evolution of the Floristry Industry

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is the best description of what floriculture is?

   a. Business of designing and selling flowers and live plant materials
   b. Business of designing and selling potted plants
   c. Business of growing, harvesting, and storing flowers and potted plants
   d. Business of growing, harvesting, storing, wholesaling, designing, and selling flowers and potted plants

2. What is the primary concern of floristry?

   a. Business of designing and selling flowers and live plant materials
   b. Business of designing and selling potted plants
   c. Business of growing, harvesting, and storing flowers and potted plants
   d. Business of growing, harvesting, storing, designing, and selling flowers and potted plants

3. What is the function of the retail florist?

   a. Arranges the floriculture product for sale to greenhouse growers
   b. Arranges the floriculture product for sale to the general public
   c. Prepares cut foliage and cut flowers to be used by the wholesale florist
   d. Prepares plants for use in the landscape

4. What are the main products of a greenhouse grower?

   a. Bedding plants, cut flowers, and cut foliage
   b. Bedding plants, flowering potted plants, and cut flowers
   c. Flowering potted plants, foliage potted plants, cut flowers, and cut foliage
   d. Flowering potted plants, cut flowers, bedding plants, and landscaping potted plants

5. What is today's floristry customer looking for in plant materials?

   a. Plants that last a long time and are easy to care for
   b. Designs that have an Oriental style and are made to last
   c. Potted plants that are free of insects and are large in size
   d. Designs that have large central flowers and are made to last

Match the description on the right with the correct term on the left.

6. ______ Romans
7. ______ Renaissance
8. ______ Baroque period
9. ______ Victorian era
10. ______ Oriental style
11. ______ Art deco style

a. Time when flower arranging became recognized as an art

b. Flower symbolism used

c. Elaborate use of flowers, massive and full

d. Used wreaths and garlands

e. Emphasized strong geometrical lines

f. Importance placed on individual flowers

Lesson 2: Career Opportunities

Objective: The student will be able to describe career opportunities in floristry.

Study Questions

1. **What career opportunities are available in the wholesale florist industry?**
2. **What are the skills needed by people in each of the job areas at the wholesale level?**
3. **What career opportunities are available in the retail florist industry?**
4. **What are the skills needed by people in each of the job areas at the retail level?**
5. **What career opportunities are related to floristry?**
6. **What opportunities exist for continuing professional development?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit I.
2. Activity Sheet
    - a) AS 2.1: Careers in Floristry

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UNIT I - FLORISTRY INDUSTRY

Lesson 2: Career Opportunities

TEACHING PROCEDURES

A. Review

Lesson 1 discussed floristry as a part of the floriculture industry. This lesson will focus on career opportunities in floristry. In recent years, flower sales have risen dramatically. Some of this growth can be attributed to an increase in population, but people are also becoming more interested in green and growing things. Flower sales will likely continue to increase. As sales increase, educated workers in the floristry field will be in greater demand.

B. Motivation

Ask students to list job opportunities in the floristry industry.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what jobs exist with a wholesale florist. Discuss why it is important for employees to be trained to perform other duties that may lie outside their job descriptions.

   What career opportunities are available in the wholesale florist industry?

   a) General manager
      1) Hires and fires personnel
      2) Manages personnel
      3) Prepares employee work schedules
      4) Establishes salaries and commissions
      5) Oversees buying of supplies and flowers
      6) Keeps profit margin in line
   b) Cut flower manager
      1) Hires and fires personnel
      2) Manages personnel in manager's absence
      3) Buys cut flowers, cut greens, potted flowering plants, and foliage plants
      4) Oversees cutting of flowers
      5) Oversees cleaning of coolers
      6) Keeps perishable products moving
   c) Supply manager
      1) Hires and fires personnel
      2) Manages personnel in manager's absence
      3) Buys all supplies
      4) Oversees stocking of shelves
      5) Coordinates all holiday shows
      6) Prepares flyers for specials and shows
      7) Oversees advertising
      8) Monitors inventory
         (a) Adds new items to inventory

            - (b) Maintains correct price structure on supplies
            - (c) Closes out old products
            - (d) Keeps inventory in line with current trends
            - (e) Informs all employees of upcoming specials and new pricing updates
        - 9) Designs displays for wholesale
    - d) Office manager
        - 1) Mails statements and invoices
        - 2) Writes checks
        - 3) Maintains payroll
        - 4) Issues customer credit
        - 5) Makes collection calls and responds to accounts payable phone calls
    - e) Receptionist
        - 1) Answers phone and directs calls
        - 2) Sets up new accounts
        - 3) Greets customers and answers questions
    - f) Sales representative
        - 1) Sells supplies to florists
        - 2) Keeps up with the inventory
        - 3) Knows what new items have arrived
    - g) Road sales representative
        - 1) Travels on sales route
        - 2) Delivers orders
    - h) Bookkeeper
        - 1) Keeps books of the business
    - i) Data processor
        - 1) Enters data into the computer terminal
        - 2) Prepares customer invoices
    - j) Flower packer
        - 1) Packs customer orders
    - k) Delivery person
        - 1) Delivers flower orders
        - 2) Takes care of potted plants
    - l) General personnel
        - 1) Unpack flowers
        - 2) Fill orders
        - 3) Keep store clean
        - 4) Clean coolers
        - 5) Rotate flowers
        - 6) Wash buckets
        - 7) Stock shelves
        - 8) Work cash register

2. Ask students what particular skills each of these positions requires.

    What are the skills needed by people in each of the job areas at the wholesale level?

    - a) Manager
        - 1) Good communication skills
        - 2) Excellent business management skills
        - 3) Good math skills
        - 4) Ability to maintain good customer and employee relations
        - 5) Leadership skills
    - b) Cut flower manager
        - 1) Good communication skills

    2) Excellent business management skills
    3) Good math skills
    4) Ability to maintain good customer and employee relations

c) Supply manager
    1) Good communication skills
    2) Design skills
    3) Artistic ability

d) Office manager
    1) Organizational skills
    2) Clerical skills

e) Receptionist
    1) Good communication skills
    2) Especially good telephone skills

f) Sales representative
    1) Good communication skills
    2) Good salesperson
    3) Broad knowledge of products
    4) Plant identification skills
    5) Knowledge of supply uses

g) Road sales representative
    1) Good communication skills
    2) Good salesperson
    3) Broad knowledge of products
    4) Plant identification skills
    5) Knowledge of supply uses

h) Bookkeeper
    1) Organizational skills
    2) Clerical skills

i) Data processor
    1) Data entry skills

j) Flower packer
    1) Skilled in handling flowers
    2) Knowledge of how to care for plants

k) Delivery person
    1) Good driving skills
    2) Ability to make minor automotive repairs
    3) Knowledge of how to care for plants

l) General personnel
    1) Good sales skills
    2) Organizational skills

3. Ask students what career opportunities exist in the retail florist industry.

What career opportunities are available in the retail florist industry?

a) Shop owner: Often, the owner is the manager as well. If owners are unfamiliar with the floristry industry, they may hire a manager, at least until they feel comfortable running the shop.

b) Manager
    1) Employs and trains employees
    2) Supervises designers, sales people, and delivery people
    3) Orders flowers and supplies for the shop
    4) Prepares employee work schedules
    5) Prices products to be sold

- 6) Oversees sales promotions and advertising
- c) Designer
  - 1) Designs and constructs arrangements
    - (a) Corsages and boutonnieres
    - (b) Funeral designs
    - (c) Wedding bouquets
  - 2) Designs shop or window displays
- d) Sales representative
  - 1) Assists and advises customers
  - 2) Takes telephone orders
  - 3) Packages orders
  - 4) Unpacks and processes cut flowers and potted plants
  - 5) Cares for potted plants
- e) Delivery person
  - 1) Delivers finished arrangements and plants to customers
  - 2) Repairs any arrangements damaged during delivery
  - 3) Routes deliveries
  - 4) Checks with customers by phone to see when they will be at home to receive their orders
  - 5) Keeps delivery van clean and in good working condition
  - 6) Cares for potted plants
- f) Office worker
  - 1) Sends out statements
  - 2) Takes care of paper work as needed
  - 3) Orders supplies as approved by manager or owner
- g) Bookkeeper
  - 1) Keeps the books of the business

4. Ask students what particular skills each of these positions require. Discuss the importance of employees receving cross-training.

What are the skills needed by people in each of the job areas at the retail level?

- a) Shop owner
  - 1) Good business skills
  - 2) Communication skills
  - 3) Ability to maintain good customer and employee relations
- b) Manager
  - 1) Good business skills
  - 2) Communication skills
  - 3) Ability to maintain good customer and employee relations
  - 4) Leadership skills
- c) Designer
  - 1) Artistic ability
  - 2) Communication skills
  - 3) Sales ability
- d) Sales representative (Designers may also work in sales, although some larger shops hire sales representatives to wait on customers and answer the telephone.)
  - 1) Artistic ability
  - 2) Communication skills
  - 3) Sales ability
  - 4) Knowledge of processing cut flowers
  - 5) Knowledge of how to care for potted plants

e) Delivery person
   1) Good driving skills
   2) Ability to make minor automotive repairs
   3) Ability to maintain upkeep and cleanliness of delivery van
   4) Some design skills to repair arrangements damaged in transit
   5) Knowledge of how to care for potted plants

f) Office worker
   1) Organizational skills
   2) Clerical skills
   3) Accounting skills

g) Bookkeeper
   1) Organizational skills
   2) Clerical skills
   3) Accounting skills

5. Ask students what career opportunities are directly related to the floristry industry.

What career opportunities are related to floristry?

a) Interiorscaping
b) Teaching
c) Custom floriculture designing
d) Horticulture therapy

6. Ask students what opportunities exist for further developing skills in these fields.

What opportunities exist for continuing professional development?

a) Design shows - Wholesale florists often offer open houses several times throughout the year displaying what is new to the industry and hiring top designers to give florists new design ideas.

b) Design schools - There are schools that offer concentrated courses in floral design. Often, they will meet for a period of several weeks in which students will learn a variety of different design techniques.

c) Workshops
   1) Professional organizations such as the Society of American Florists (SAF), the American Floral Marketing Council (AFMC), and the American Institute of Floral Design (AIFD) hold workshops for their members. AIFD has a very selective membership of designers who have been required to pass difficult entry requirements. The SAF is an excellent organization for a florist to join.
   2) The major wire services such as Florist Transworld Delivery (FTD), American Floral Services (AFS), Redbook, Telefloral, Florifax International, and Carik Services, Inc. will hold progams and workshops.
   3) In Missouri, the Missouri Florist's Association holds annual meetings with well-attended workshops and design competitions.

d) College courses - Various universities often offer short courses ranging from a day to a week. They often include a large trade show.

e) A number of magazines are targeted specifically to the floral industry, and they feature new designs and products.

F. Other Activities

1. Use phone books to identify local career opportunities.

2. Invite local florists to be guest speakers.

3. Visit local retail florists.

4. If possible, have students attend a local design show or the Missouri Florist's Association meeting.

G. Conclusion

Many career opportunities are available in the floristry field. This area is rapidly expanding and will provide many jobs in the future.

H. Competency

Describe career opportunities in floristry.

I. Answers to Activity Sheet

Answers will vary depending on student interests.

J. Answers to Evaluation

1. d
2. c
3. d
4. d
5. b
6. a

UNIT I - FLORISTRY INDUSTRY　　Name ____________________

Lesson 2:　Career Opportunities　　Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Some duties of a cut flower manager include:

   a. Buying all the cut flowers and greens.
   b. Overseeing the processing of all flowers and greens.
   c. Keeping perishable inventory moving.
   d. All of the above.

2. What position in a wholesale operation requires design skills?

   a. Manager
   b. Cut flower manager
   c. Supply manager
   d. Delivery person

3. What skill would a designer in a flower shop not necessarily need?

   a. Artistic ability
   b. Knowledge of plant and flower materials
   c. Good communication skills
   d. Knowledge of how to keep a vehicle in good running order

4. Which organization provides wire service workshops?

   a. Society of American Florists
   b. Missouri Florists Association
   c. American Institute of Floral Design
   d. Florists Transworld Delivery (FTD)

5. Which of the following is a career opportunity related to floristry?

   a. Forestry
   b. Interiorscaping
   c. Landscaping
   d. Xerioscaping

6. Which individuals would need artistic ability in the retail floristry industry?

   a. Designer and sales representative
   b. Designer and manager
   c. Designer and delivery person
   d. Sales representative and manager

Lesson 2: Career Opportunities

Name ______________________

Careers in Floristry

Select four retail flower shop positions that you might choose as a career. Fill in the table below for each position, using the information provided in the lesson.

Retail Flower Shop Career or Title	**Skills**	**Duties**
ex. Floral designer	1. Artistic ability, etc.	1. makes floral arrangements, etc.

Select four wholesale flower shop positions that you might choose as a career. Fill in the table below for each position, using information provided in the lesson.

Wholesale Flower Shop Career or Title	Skills	Duties

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UNIT II - PLANT IDENTIFICATION

Lesson 1: Plant Botany

Objective: The student will be able to describe the factors involved in identifying plants.

Study Questions

1. **What are the four basic parts of a plant?**
2. **What are the functions of the basic parts of a plant?**
3. **What are the parts of a flower?**
4. **What are the inflorescence types?**
5. **What are the types of leaf arrangements?**
6. **What are the types of venation?**
7. **What are the different leaf types?**
8. **What are the common leaf margins?**
9. **How are annuals, perennials, and biennials different?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit II.

Lesson 1: Plant Botany

TEACHING PROCEDURES

A. Introduction

To identify plants, it is necessary to be able to identify the different plant parts and to know their functions.

B. Motivation

Place a blooming plant in front of the class. See how many students can identify the basic parts of the plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to name the basic parts of a plant.

What are the four basic parts of a plant?

a) Root
b) Stem
c) Leaf
d) Flower

2. Ask students to list the functions of the basic parts of a plant.

What are the functions of the basic parts of a plant?

a) Roots
    1) Serve as an anchor
    2) Draw moisture and nutrients from the growing medium and translocate them to the stem
    3) Store food
b) Stems
    1) Hold plant erect
    2) Display the leaves to light
    3) Translocate water, minerals, and food to the leaves, roots, and flowers
    4) Store food
c) Leaves
    1) Major site for photosynthesis, the production of food
    2) Allow gas exchange with the atmosphere
    3) Store food
d) Flowers
    1) Contain specialized reproductive organs
    2) Attract pollinating insects
    3) Produce seeds and fruit

3. Ask the students if they can identify the basic parts of a flower.

   What are the parts of a flower?

   a) Pistil - female parts
      1) Ovary - the enlarged portion at the base of the pistil that contains ovules that will develop into seeds
      2) Stigma - receives and holds the pollen grains
      3) Style - connects the stigma with the ovary and serves as the passageway for the pollen tube to enter the ovary
   b) Stamen - male parts
      1) Anther - contains the pollen
      2) Filament - supports the anther and connects it to the flower
   c) Sepals - vegetative part of the flower
      The sepals are the outer covering of the flower bud. The collective name of the sepals is the calyx. The function of the calyx is to protect the flower when it is in the bud stage.
   d) Petals - vegetative part of the flower
      The collective term for the petals is the corolla. The petals are often brightly colored. They protect the stamen and pistil in the bud stage and attract pollinating insects.

4. Point out that when a flower has more than one bloom per stem, this is called an inflorescence. Ask students to identify the different types of inflorescence. The common inflorescence patterns in floral plants are listed below.

   What are the inflorescence types?

   a) Solitary (ex. hibiscus, carnation)
   b) Spike (ex. gladiolus)
   c) Raceme (ex. snapdragon)
   d) Panicle (ex. phlox)
   e) Corymb (ex. candytuft)
   f) Compound corymb (ex. throatwort)
   g) Cyme (ex. geranium)
   h) Compound cyme (ex. baby's breath)
   i) Cincinnus (ex. freesia)
   j) Scorpioid (ex. statice)
   k) Umbel (ex. agapanthus)
   l) Compound umbel (ex. Queen Anne's lace)
   m) Spadix (ex. calla lily)
   n) Catkin (ex. pussy willow)
   o) Head (ex. chrysanthemum, daisy)

5. Ask students if they know the basic leaf arrangements on plants.

   What are the types of leaf arrangements?

   a) Alternate - leaves are attached one to a node along the stem. Roses are a good example of a plant that has alternate leaf arrangement.
   b) Opposite - leaves are attached opposite each other on the stem. Carnations have opposite leaves.
   c) Whorled - leaves are attached together in a whorl around the stem. Lemon verbena and sweet woodruff have whorled leaves.

6. Ask students if they know the different types of leaf venation.

What are the types of venation?

a) Palmate - venation in the shape of a palm that spreads out from the base of the leaf. Galax leaves have palmate venation.
b) Parallel - venation in which the veins on the leaf are parallel to each other. Lilies have leaves with parallel venation.
c) Pinnate - venation in which one main vein comes down the blade of the leaf with side veins coming off it. Salal or lemonleaf plants have pinnate venation.

7. Ask students if they know the different leaf types.

What are the different leaf types?

a) Simple leaf - a leaf with only one blade
b) Compound leaf - a leaf with more than one blade. The smaller blades of the compound leaf are called leaflets. Rose leaves are compound leaves.

8. Ask students if they know what the common leaf margins are. The very edge of the leaf is called the margin.

What are common leaf margins?

a) Entire
b) Undulate
c) Serrate
d) Doubly serrate
e) Dentate
f) Crenate

9. Ask the students if they know what is meant by annual, perennial, and biennial.

How are annuals, perennials, and biennials different?

a) Annuals come up from seed, bloom, set seed, and die in one year.
b) Perennials come up year after year.
c) Biennials come up from seed, grow for a year, die down, and bloom the second year.

F. Other Activities

1. Obtain a taxonomy key and have the students try to identify a plant by using the key.

2. Supply the students with a drawing of a flower and have them label the various parts.

3. Distribute drawings of various leaf types and leaf margins and have students label them.

4. Supply the students with an individual gladiolus flower and have them locate its various parts.

5. Have students compile leaf collections, specifically locating leaves of different arrangements, margins, and venation.

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G. Conclusion

Plants are complex structures that vary widely according to plant parts, leaf types, and flower structures. The flower shop employee needs to know these different structures and types in order to correctly identify them.

H. Competency

Describe the factors involved in identifying plants.

I. Answers to Evaluation

1. drawing - instructor's discretion
2. a. F
   b. M
   c. F
   d. F
   e. M
3. c
4. b
5. b
6. d
7. b
8. d
9. a
10. c
11. c
12. a
13. b

UNIT II - PLANT IDENTIFICATION Name ______________________________

Lesson 1: Plant Botany Date ______________________________

EVALUATION

Complete the following short answer question.

1. Draw a plant and label the following: root, stem, leaf, and flower.

2. Identify which part of the flower is female or male by placing an F for female or an M for male.

   a. Stigma _____

   b. Anther _____

   c. Ovary _____

   d. Style _____

   e. Filament _____

Circle the letter that corresponds to the best answer.

3. Which of the following functions does the stem NOT perform in a plant's life cycle?

   a. Holds plant erect
   b. Manufactures food
   c. Anchors the plant
   d. Stores food

4. What is NOT a function of the roots?

   a. Translocate water
   b. Manufacture food
   c. Anchor the plant
   d. Store food

5. What is a function of the leaf?

   a. Attracts insects
   b. Manufactures food
   c. Takes in water
   d. Holds the plant erect

6. Which of the following is NOT a type of inflorescence?

   a. Solitary
   b. Spadix
   c. Panicle
   d. Pinnate

7. A rose has:

   a. Opposite leaves.
   b. Alternate leaves.
   c. Whorled leaves.
   d. Pinnate leaves.

8. Where in a flower would the pollen sacs be found?

   a. Ovary
   b. Filament
   c. Stigma
   d. Anther

9. Which type of venation is described by one main vein with side veins coming out of it?

   a. Pinnate
   b. Parallel
   c. Palmate
   d. Panicle

10. The term margin is used to describe the very edge of a leaf. Which of the following are examples of leaf margin?

    a. Dentate, panicle and catkin
    b. Serrate, umbel, and undulate
    c. Entire, dentate, and crenate
    d. Undulate, spinose, and raceme

Match each term with the description on the left.

11. ______ Comes up every year — a. annual

12. ______ Lives for only one year — b. biennial

13. ______ Grows one year, blooms the next, then dies — c. perennial

UNIT II - PLANT IDENTIFICATION

Lesson 2: Identifying Plants

Objective: The student will be able to identify plants and plant parts used in the floristry industry.

Study Questions

1. **What are the major categories of plants used in floristry?**
2. **What is the difference between the common name and the scientific name of a plant?**
3. **What are the most popular cut flowers used by florists?**
4. **What are the most popular cut foliages that florists use?**
5. **What are the most popular flowering potted plants that florists use?**
6. **What are the most popular potted foliage plants?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit II.
2. Activity Sheets
    a) AS 2.1: Flowering Potted Plants
    b) AS 2.2: Potted Foliage Plants

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UNIT II - PLANT IDENTIFICATION

Lesson 2: Identifying Plants

TEACHING PROCEDURES

A. Review

As discussed in Lesson 1, the parts of a plant are used to help identify it. Workers in a flower shop also need to know the names of the plant materials they work with. Customers will expect employees to be familiar with and know the uses and care of plants.

B. Motivation

Display some of the common flowers used by florists and see how many the students are able to identify.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what plants are used in the floral industry.

   What are the major categories of plants used in floristry?

   a) Cut flowers
   b) Cut foliage
   c) Flowering potted plants
   d) Potted green foliage
   e) Bedding plants

2. Ask students why plants have scientific names.

   What is the difference between the common name and the scientific name of a plant?

   a) A plant may have many common names, some peculiar to a particular region. Common names are often confusing because two different plants may have the same common name.
   b) Linnaeus, a Swedish botanist, developed a two-name system for naming plants. He gave all plants just two Latin names as their scientific names. The first part of the scientific name is known as the genus or generic name. All the plants that have the same generic name belong to the same genus. These plants are all closely related to each other and share common characteristics. The second name he gave plants is the species or specific name. All plants of the same species look almost exactly alike. Within a species, plants are often broken down into varieties. The variety name is called a cultivar, or cultivated variety. When scientific names are printed, they are either underlined or printed in italics. The generic name is always written first, beginning with a capitalized letter. The species name is last and begins with a lowercase letter.

3. Ask students which cut flowers are most commonly used in a flower shop.

What are the most popular cut flowers used by florists?

Scientific Name	Common Name(s)
Alstroemeria aurantiaca	alstroemeria lily, Peruvian lily
Anthurium andraeanum	anthurium, flamingo lily
Antirrhinum majus	snapdragon
Astilbe x arendsii	astilbe
Callistephus chinensis	China aster
Cattleya	cattleya orchid hybrid
Celosia cristata	cockscomb
Chamelaucium unicinatum	waxflower
Cymbidium	cymbidium orchid
Delphinium elatum	delphinium
Dendranthema frutescens	Marguerite daisy
Dendranthema x morifolium	florist's chrysanthemum, pompon mum, football mum, Fuji mum, spider mum
Dendrobium	dendrobium
Dianthus caryophyllus	carnation
Dianthus caryophyllus nana	miniature carnation
Erica carnea	spring heather
Freesia x hybrida	freesia
Gardenia jasminoides	gardenia
Gerbera jamesonii	gerbera daisy, Transvaal daisy
Gladiolus x hortulanus	garden gladiolus
Gypsophila elegans	baby's breath
Hyacinthus orientalis	hyacinth
Iris x xiphium	Dutch iris
Leucanthemum x superbum	shasta daisy
Liatris spicata	liatris, blazing star
Lilium sp.	Oriental lily, stargazer
Lilium hybridum	Asiatic lily
Limonium sinuatum	statice
Matthiola incana	flowering stock
Narcissus pseudonarcissus	daffodil
Paeonia lactiflora	peony
Paphiopedilum x hybrid	ladyslipper orchid
Phalaenopsis	phaelaenopsis (butterfly) orchid
Polianthes tuberosa	tuberose
Protea sp.	protea
Rosa x hybrida	sweetheart rose, floribunda rose
Rosa x hybrida, Class Hybrid Tea	hybrid tea rose
Stephanotis floribunda	stephanotis
Strelitzia reginae	bird of paradise
Tagates sp.	marigold
Tulipa hybrid	tulip
Zinnia elegans	zinnia

4. Ask students the names of cut foliage that florists use.

What are the most popular cut foliage that florists use?

Scientific Name	Common Name(s)
Asparagus asparagoides	smilax
Asparagus densiflorus 'Sprengeri'	sprengeri, asparagus fern
Asparagus macowanii	Ming fern
Asparagus setaceus	plumosa fern
Asparagus virgatus	tree fern
Buxus sempervirens	boxwood
Camellia japonica	common camellia
Chamaedorea sp.	jade
Chamaedorea sp.	emerald
Cordyline terminalis	ti leaf
Cytisus scoparius	Scotch broom
Eucalyptus polyanthemos	silver dollar gum, eucalyptus
Galax urceolata	galax
Gaultheria shallon	salal, lemonleaf
Hedera helix	ivy
Lycopodium sp.	lycopodium, princess pine, club moss
Myrtus communis	myrtle
Nephrolepis exultata	Boston fern, sword fern, flat fern
Pittosporum tobira	pittosporum
Podocarpus macrophyllus	podocarpus, yellow podocarpus
Rumohra adiantiformis	leatherleaf, baker fern
Ruscus sp.	ruscus
Vaccinium ovatum	florist's huckleberry
Xeropyllum tenax	bear grass

5. Ask students which flowering potted plants are most commonly used by florists.

What are the most popular flowering potted plants that florists use?

Scientific Name	Common Name
Ageratum houstonianum	ageratum
Begonia x semperflorens-cultorum	wax begonia
Begonia x tuberhybrida	tuberous begonia
Calceolaria hybrida	pocketbook plant
Catharanthus roseus	vinca, Madagascar periwinkle
Clematis x Jackmanii	clematis
Coleus x hybridus	coleus
Cyclamen persicum	florist's cyclamen
Dendranthema x morifolium	florist's chrysanthemum
Euphorbia pulcherrimma	poinsettia
Exacum affine	Persian violet
Hemerocallis	day lily
Hibiscus rosasinensis	hibiscus
Hippeastrum x hybridum	amaryllis
Hydrangea macrophylla	French (florist's) hydrangea
Impatiens wallerana	impatiens

Kalanchoe blossfeldiana	kalanchoe
Lilium longiflorum	Easter (trumpet) lily
Lobularia maritima	sweet alyssum
Pelargonium x domesticum	regal (Lady Washington) geranium
Pelargonium x hortorum	(zonal) geranium
Pelargonium peltatum	ivy geranium
Petunia x hybrida	common garden petunia
Primula malacoides	fairy primrose
Primula x polyanthus	primrose, primula (polyanthus)
Rhododendron sp.	azalea
Saintpaulia ionantha	African violet
Salvia splendens	salvia
Schlumbergia bridgesii	Christmas cactus
Schlumbergia truncata	Thanksgiving cactus, crab (claw) cactus
Senecio cineraria	dusty miller
Senecio x hybridus	
Sinningia speciosa	gloxinia
Solanum pseudocapsicum	Jerusalem cherry
Viola x wittrockiana	pansy

6. Ask students what potted foliage plants florists use the most.

What are the most popular potted foliage plants?

Aechmea chantinii	bromeliad
Araucaria heterophylla	Norfolk Island pine
Aglaonema commutatum	aglaonema, Chinese evergreen
Aphelandra squarrosa	zebra plant
Brassaia actionophylla	schefflera, umbrella plant
Caladium x hortulanum	fancy-leaved caladium
Chamaedorea elegans	parlor palm
Chlorophytum comosum	spider plant
Cissus rhombifolia	grape ivy
Codiaeum variegatum pictum	croton
Crassula argentea	jade plant
Dieffenbachia maculata	spotted dumb cane
Dracaena cincta	red edge dracaena, Madagascar dragon tree
Dracaena fragrans 'Massangeana'	corn plant dracaena
Echinocactus sp.	barrel cactus
Epipremnum aureum	golden pothos, devil's ivy
Euphorbia splendens	crown-of-thorns
Ficus benjamina	Benjamin fig, weeping fig
Ficus elastica 'Decora'	'Decora' rubber tree, rubber tree
Ficus pumila	creeping fig, rubber plant
Fittonia verschaffeltii	nerve plant
Gynura aurantiaca 'Sarmentosa'	purple passion plant, velvet plant
Heptapleurum arbicolum	dwarf schefflera, dwarf octopus tree
Hoya carnosa	wax plant
Justicia brandegeana	shrimp plant
Maranta leuconeura kerchoviana	prayer plant
Monstera deliciosa	cutleaf philodendron, swiss cheese plant
Neoregelia carolinae 'Tricolor'	tricolor blushing bromeliad
Nephrolepis exaltata	Boston fern
Opuntia sp.	prickly pear cactus

Peperomia argyreia	watermelon peperomia
Peperomia caperata	emerald ripple peperomia
Peperomia obtusifolia 'Variegata'	variegated peperomia
Philodendron scandens oxycardium	heartleaf philodendron
Pilea cadierei	aluminum plant
Pilea involucrata	friendship plant
Pilea microphylla	artillery plant
Pilea nummulariifloria	creeping Charlie
Plectranthus mummularis	Swedish ivy
Sansevieria trifasciata	gold-edged snake plant, mother-in-law's tongue
Saxifraga stolonifera	strawberry plant
Sempervivum tectorum calcareum	hen and chicks
Spathiphyllum clevelandii	peace lily
Syngonium podophyllum	nephthytis, arrowhead
Tolmiea menziesii	pickaback plant
Zebrina pendula	wandering Jew

F. Other Activities

1. Take a field trip to a local flower shop or wholesaler and note the variety of plants available.
2. Have students put together an identification guide for plants commonly used by florists, including information (scientific names, common names, uses, availability, etc.) and a picture of each plant.
3. Obtain plant identification posters and charts from the Society of American Florists for student use.

G. Conclusion

Florists use a wide variety of cut flowers, cut foliages, flowering potted plants, and foliage plants. Successful employment depends upon the ability of an employee to identify these plants and know their uses.

H. Competency

Identify plants and plant parts used in the floristry industry.

I. Answers to Activity Sheets

AS 2.1

Scientific Name	Common Name	Characteristics	Growing Conditions
Calceolaria crenatiflora	pocketbook plant	has a profusion of brightly colored blooms that resemble a pouch or lady's pocketbook; colors include red, yellow, and orange	needs medium light, humidity, and moisture

Exacum affine	**German (Persian) violet**	maximum height of 2 feet or less; small leaves; mass of small blue, purple, or white flowers with yellow stamens and a delicate fragrance	requires medium light, humidity, and moisture
Hippeastrum x hybridum	amaryllis	**has large strap-like leaves; produces as many as four to six huge (5" to 9" across) lily-like flowers in clusters; may be red, white, pink, or salmon in color**	needs medium humidity, bright light, and high moisture
Schlumbergia truncata	Thanksgiving cactus, crab (claw) cactus	densely branching, mainly pendent stems with thin, flat, medium green segments 1½ inches long with a prominent green rib; white, pink, red, or orange blooms at the end of the stem	**should not be exposed to full summer sunlight; needs high humidity and medium moisture; must have short days in order to bloom**
Sinningia speciosa	gloxinia	may have single or double flowers; has profuse large, open, bell-shaped flowers above thick, velvety foliage; jewel-like red, purple, white, or pink blooms	keep evenly moist and shaded from direct sunlight; needs low humidity

AS 2.2

Scientific Name	**Common Name**	**Characteristics**	**Growing Conditions**
Aerocaria heterophylla	Norfolk Island pine	**resembles a small pine tree**	needs good light in order to keep its symmetrical growth habit
Euphorbia splendens	crown-of-thorns	stems are brown with thorns on all sides; leaves are bright green, from 2" to 2½" long near the growing tips; flowers are in clusters with bright red or yellow bracts	full sun and warm temperatures are required
Gynura aurantiaca 'Sarmentosa'	**purple passion plant, velvet plant**	vining plant with soft purple velvet leaves	needs a 65°F nighttime temperature, bright light, and evenly moist soil
Maranta leuconeura kerchoviana	prayer plant	**green leaves with brown spots up the mid-rib; has the unusual habit of the leaves closing upright at night**	requires medium light and high humidity; soil should be kept moist, but allowed to dry between waterings

Syngonium podophyllum	nephthytis, arrowhead	leaves are about 3 inches long and are arrowhead-shaped	**grows best in bright, indirect light; soil should be kept barely moist; prefers a daytime temperature of 75° to 85° F**

J. Answers to Evaluation

1. d
2. a
3. cg
4. pp
5. cf
6. fp
7. cf
8. cg
9. cg
10. fp
11. pp
12. cf
13. genus, species

UNIT II - PLANT IDENTIFICATION Name ______________________________

Lesson 2: Identifying Plants Date ______________________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. A scientist who identifies and classifies plants is called a:

   a. Designer.
   b. Herpetologist.
   c. Forester.
   d. Taxonomist.

2. Who developed the two-name classification system for naming plants?

   a. Linnaeus
   b. Poinsett
   c. Socrates
   d. Homer

Matching: Identify whether each plant is a CF = cut flower, CG = cut foliage, FP = flowering potted plant, or PP= potted foliage plant.

3. _____ Leatherleaf

4. _____ Philodendron

5. _____ Liatris

6. _____ Azalea

7. _____ Snapdragon

8. _____ Emerald

9. _____ Swedish ivy

10. _____ Poinsettia

11. _____ Golden pothos

12. _____ Baby's breath

13. In the scientific name *Dianthus caryophylus, Dianthus* is the ____________________ name, and *caryophylus* is the ________________ name.

AS 2.1

UNIT II - PLANT IDENTIFICATION

Lesson 2: Identifying Plants

Name ______________________________

Flowering Potted Plants

Using the information provided in the lesson, complete the table below.

Scientific Name	Common Name	Characteristics	Growing Conditions
Calceolaria crenatiflora			
	German (Persian) violet		
		produces as many as four huge lily-like flowers in clusters; has large strap-like leaves; may be red, white, pink, or salmon in color	
			should not be exposed to full summer sunlight; needs high humidity and medium moisture; must have short days in order to bloom
Sinningia speciosa			

UNIT II - PLANT IDENTIFICATION

Name ______________________

Lesson 2: Identifying Plants

Potted Foliage Plants

Fill in the table below using the information provided in the lesson.

Scientific Name	Common Name	Characteristics	Growing Conditions
		resembles a small pine tree	
Euphorbia splendens			
	purple passion plant, velvet plant		
		green leaves with brown spots up the mid-rib; has the unusual habit of the leaves closing upright at night	
			grows best in bright, indirect light; soil should be kept barely moist; prefers a daytime temperature of 75° to 85° F

UNIT III - POST-HARVEST HANDLING

Lesson 1: Plant Processes Affecting Shelf Life

Objective: The student will be able to describe how plant processes affect shelf life.

Study Questions

1. **What is photosynthesis?**
2. **How does photosynthesis affect the shelf life of plant materials?**
3. **How does transpiration affect the shelf life of plant materials?**
4. **What role does respiration play in the shelf life of plant materials?**
5. **How do water absorption and translocation differ between a cut flower and a potted plant?**
6. **How does ethylene gas affect the shelf life of plant materials?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

UNIT III - POST-HARVEST HANDLING

Lesson 1: Plant Processes Affecting Shelf Life

TEACHING PROCEDURES

A. Introduction

In order to work with flowers and plants, an understanding of some of the basic plant processes is necessary.

B. Motivation

1. Show the students a plant that has been properly taken care of and one whose basic growth processes have been ignored. Discuss the differences between the two.

2. Show the students a cut flower and a potted plant. Ask how they think the life processes carried out by plants differ between the two.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how plants are able to manufacture their food (i.e., sugar).

What is photosynthesis?

Photosynthesis is the process by which green, living plants convert carbon dioxide and water in the presence of light into simple sugar, which is food and energy for the plant.

a) Carbon dioxide gas enters the plant through the stomata located on the leaves.
b) Water is absorbed through the root hairs and then enters the leaves by the xylem tissues.
c) Light strikes the chlorophyll, which is present in the chloroplasts in the mesophyll cells of the leaf.
d) Light energy is absorbed, enabling a chemical reaction to take place between carbon dioxide and the hydrogen in the water. Glucose, a simple sugar, is produced and transported by the phloem tissues to other parts of the plant. Glucose is used by the plant for food and energy.
e) Oxygen is released as a by-product through the stomata. Water is also released when the stomata open.

2. Ask students how photosynthesis affects shelf life.

How does photosynthesis affect the shelf life of plant materials?

When a flower is cut from a plant, its root system is taken away, which interrupts the photosynthesis cycle that is responsible for creating a plant's energy. A flower needs additional energy to finish opening, so another source of energy should be provided by the florist. This energy is usually added in the form of a preservative. If some source of energy is not provided, the shelf life of plant materials will be shortened.

3. Ask students what transpiration is and how it affects how long a plant will live.

   How does transpiration affect the shelf life of plant materials?

   Transpiration is the process by which gases and water vapor move from an area of higher concentration to an area of lower concentration. This process usually takes place on the leaf surface, although it also occurs on the stems and petals. Fresh flowers usually have a higher concentration of water vapor than the air around them. Therefore, water vapor from the flowers moves out into the surrounding air. If this happens faster than the flowers are able to take up water through their stems, they will wilt. Transpiration is greatly influenced by environmental factors such as light, temperature, relative humidity, and wind. The florist should regulate transpiration by keeping plant materials cool, in an area of high humidity, and out of drafts.

4. Discuss with the students what respiration is and how it affects the shelf life of plant materials.

   What role does respiration play in the shelf life of plant materials?

   a) Cellular respiration is the controlled breaking down of glucose, releasing the energy for plant growth, absorption, translocation, and many other metabolic processes occurring within the cell.
   b) Excess glucose molecules are often combined and stored in the form of starch in vacuoles within the cells.
   c) Nearly all respiration occurs in the presence O_2 (aerobic respiration). However, some cellular respiration may occur for a short time without oxygen (anaerobic respiration).
   d) The primary importance of respiration is that it enables the plant cell to release energy that is needed for many energy-requiring chemical reactions within the cell. In addition, respiration releases CO_2 and H_2O into the atmosphere.
   e) Cellular respiration is a continuous process occurring twenty-four hours a day for as long as the organism lives.

5. Ask students how water absorption in a cut flower is different than in a potted plant.

   How does water absorption and translocation differ between a cut flower and a potted plant?

   a) A cut flower has been deprived of the roots that take up moisture and nutrients from the growing medium.
   b) A potted plant has intact roots, which allows the plant to continue to carry out all plant processes.

6. Ask students what ethylene gas is and how it can make a difference in the longevity of plant materials.

   How does ethylene gas affect the shelf life of plant materials?

   a) Ethylene gas is produced by certain mature fruits such as apples, foliage, aging flowers, decaying plant materials, and incomplete combustion of oil and gas in heaters.
   b) It is an odorless and colorless gas that will cause premature aging (senescence) and decaying of flowers.

F. Other Activities

Set up an experiment by placing some fresh flowers in an enclosed container with apples and some flowers in an enclosed container without apples. Observe them for several days, noting which flowers last longer.

G. Conclusion

An understanding of basic plant processes is necessary in order to grow plants and keep them in optimum condition.

H. Competency

Describe how plant processes affect shelf life.

I. Answers to Evaluation

1. b
2. a
3. d
4. c
5. Ethylene is an odorless and colorless gas that is produced by certain mature fruits such as apples, foliage, aging flowers, dead and decaying plant materials, and incomplete combustion of oil and gas in heaters. It will greatly increase the rate of aging and decaying of cut flowers.

UNIT III - POST-HARVEST HANDLING

Name ______________________

Lesson 1: Plant Processes Affecting Shelf Life

Date ______________________

EVALUATION

Match the word on the left with the description on the right.

_____1. Photosynthesis

_____2. Cellular respiration

_____3. Translocation

_____4. Transpiration

a. The controlled breaking down of glucose resulting in energy for plant metabolism

b. The conversion of carbon dioxide and water into carbohydrates by green plants in the presence of light

c. The movement of gases and water vapor from an area of higher concentration to one of lower concentration

d. The movement of water and nutrients within the plant

5. What is ethylene gas and why is it important to prevent its buildup in the flower shop cooler?

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UNIT III - POST-HARVEST HANDLING

Lesson 2: Processing Cut Plant Materials

Objective: The student will be able to demonstrate the techniques of processing cut plant materials.

Study Questions

1. **What characteristics help to evaluate the quality of a cut flower?**
2. **What steps should be taken to process flowers upon receiving them from the wholesaler?**
3. **How should cut plant materials be stored?**
4. **What are the functions of a preservative in extending the life of cut plant materials?**
5. **What processing techniques are applied to completed designs?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

UNIT III - POST-HARVEST HANDLING

Lesson 2: Processing Cut Plant Materials

TEACHING PROCEDURES

A. Review

In Lesson 1 the various processes affecting the growth of plants and their effect on the shelf life of plants was discussed. While working in a flower shop, it is extremely important to be aware of how to extend the life of cut plant materials. They are perishable items, and profit can depend on how well a florist is able to preserve the flowers received in the shop.

B. Motivation

1. Show the students a wilted flower and ask if they would like to receive this for their birthday. After class discussion of why not, re-cut the stem and place the flower in fresh water. As the class continues and the flower perks up, point it out to the class. Discuss the importance of live plant materials receiving appropriate amounts of water.

2. Purchase a bunch of fresh flowers (roses usually work best). Divide the bunch equally into four groups. Place one group in a vase of plain water, one in a commercial preservative, one in equal parts of water and 7-Up®, and one in water and dissolved aspirin. Label the mixture of each vase. As a class, observe how long each group lasts.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know what to look for when evaluating cut flowers.

   What characteristics help to evaluate the quality of a cut flower?

   a) Quality of the foliage
      1) Crisp, turgid, rigid; not limp or wilted
      2) Vibrant color typical of the variety
      3) No insect or mechanical injury
   b) Quality of the flowers
      1) Full of water (turgid); not limp or wilted
      2) Vibrant color typical of the variety
      3) No brown on flower petals
      4) No shedding of petals
      5) No insect or mechanical injury

2. Ask students if they know how to handle cut flowers after they receive them from the wholesaler.

   What steps should be taken to process flowers upon receiving them from the wholesaler?

   a) Unpack the flowers immediately upon receipt. If too busy to unpack the shipment, at least open the boxes and uncover the flowers.

b) Be sure to inspect all the flowers for damage or problems. If they show signs of gray mold (botrytis) or premature aging, notify the wholesaler or supplier immediately.
c) Check the number of flowers received against the bill to make sure bill is correct.
d) Immediately upon unpacking, cut the stems. For best rehydrating, cut the stems under water.
e) Remove foliage from the bottom portion of the stem.
f) Place the flowers in fresh water at a temperature of 100° to 110°F with a preservative.
g) Bunches and plastic sleeves should always be loosened.
h) Care cards should be attached to each arrangement and plant that is sold. If possible, a sample pack of preservatives should also be included.

3. Ask students if they know how cut plant materials should be stored.

How should cut plant materials be stored?

a) Wrap cut foliages to prevent desiccation and store them "dry" in the refrigerator, in a separate cooler if possible. Foliage such as croton, podocarpus, and eucalyptus should be put in water.
b) The best temperature for cut foliage and flowers is 34° to 40°F.
c) Keep the cooler clean.
d) Scrub flower buckets often and rinse them with a weak bleach solution. A mixture of one part bleach to 10 parts water is adequate.

4. Ask students if they know how a preservative works.

What are the functions of a preservative in extending the life of cut plant material?

a) Preservatives add nutrients to the water solution.
b) Preservatives often contain a disinfectant to help reduce or inhibit the growth of bacteria.
c) Some preservatives contain a surfactant that helps to break the stem's seal, allowing water to enter.

NOTE: Water quality may vary from region to region. The pH and total dissolved solids (TDS) are the two most important variable qualities. Florists should have a complete water analysis done to determine the pH and TDS of their water. The makers of floral preservatives usually produce several variations of their product that are each compatible with certain pH and TDS levels.

5. Ask students if they know what should be done to a finished arrangement in order to help the flowers last longer.

What processing techniques are applied to completed designs?

a) Add water so that it reaches the top of the container.
b) Add additional water daily.
c) Store the arrangement in a cool refrigerator, taking into consideration the needs of the different plant varieties.

F. Other Activities

1. Have students use classroom and/or library resource materials to compile a list of commonly used cut flowers and fillers, their estimated vase life, and the treatment they should receive from the florist.

2. Watch the video, Block 1 of *Floral Design - From Concepts to Beauty*, on the care and handling of cut flowers. Available from MVRC.

G. Conclusion

Flower shop employees must know how to properly handle, store, and care for cut plant materials. If they do not, the life of fresh cut flowers and foliages may be shortened, and they may quickly become unsalable, which would decrease the shop's profits.

H. Competency

Demonstrate techniques for the processing of cut plant materials.

I. Answers to Evaluation

1. b
2. c
3. d
4. b
5. d
6. a

UNIT III - POST-HARVEST HANDLING

Name ______________________

Lesson 2: Processing Cut Plant Materials

Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. What characteristics help to evaluate the quality of cut flowers received from the wholesaler?

    a. Stem length and flower size
    b. Quality of foliage and flower
    c. Quality of the container and water
    d. Number of leaves and blooms

2. Which of the following is NOT a characteristic of a quality cut flower?

    a. Free of insect damage
    b. Full of water
    c. Shedding petals
    d. Vibrant flower color

3. Which of the following is NOT a processing technique used when receiving flowers from the wholesaler?

    a. Flowers are unpacked immediately, if possible.
    b. Preservatives should be added to the water.
    c. Stems should be re-cut under water.
    d. Stems of some flowers should be crushed.

4. Why are preservatives used throughout the processing of cut flowers and foliages?

    a. They add plant nutrients such as ethylene.
    b. They extend the shelf life of the plant materials.
    c. They kill insects and diseases on the plant.
    d. They seal the stem's end, preventing bacteria from entering.

5. The useful life of a cut flower can be extended by:

    a. Cutting the base of the stems.
    b. Refrigeration.
    c. Using a preservative.
    d. All of the above.

6. What processing techniques are applied to the completed design?

    a. The arrangement is filled with water containing a preservative and is refrigerated.
    b. Only water and a preservative are added to keep the arrangement fresh.
    c. The arrangement is placed in a cool place to keep it fresh.
    d. Spray preservatives are added to the leaves and flowers.

UNIT III - POST-HARVEST HANDLING

Lesson 3: Caring for Potted Plants

Objectives: The student will be able to demonstrate care of potted plants.

Study Questions

1. **What characteristics help evaluate the quality of potted plants?**
2. **How are potted plants maintained in the retail florist shop?**
3. **What information is provided on a care tag?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit III.

Lesson 3: Caring for Potted Plants

TEACHING PROCEDURES

A. Review

In Lesson 2 the care of cut flowers and foliage was discussed. This lesson will focus on the care of potted plants. Since florists sell potted plants in addition to cut flowers and arrangements, it is necessary for employees to be aware of the proper care of these plants.

B. Motivation

Provide the class with a flowering potted plant and ask what instruction they would give to a customer who had just purchased the plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what they should look for when evaluating a potted plant.

   What characteristics help evaluate the quality of potted plants?

   a) No signs of disease or insects
   b) No signs of physical damage
   c) Stage of development of the flowers

2. Ask students how to care for potted plants in a flower shop.

   How are potted plants maintained in the retail florist shop?

   a) Unwrap, unbox, and unsleeve potted plants immediately after receiving them.
   b) Check for signs of insects, disease, and damage.
   c) Remove all dead or damaged parts.
   d) Water the plants if they are dry. Provide special care in watering plants that have plastic pot liners or foil around them so that they do not sit in water.
   e) For display purposes, do not place the plants in a cold draft or close to a heater.
   f) Remove dead and yellowing foliage once a week.
   g) Water once a week or as needed for that type of plant.

   NOTE: For individual care of plants, refer to MU guide sheets on Care of Flowering Potted Plants included in Appendix B.

3. Show students a care tag and ask if they know what information is printed on it.

   What information is provided on a care tag?

   a) Picture of the plant
   b) Plant name

c) Watering instructions
d) Light requirements
e) Special instructions

F. Other Activities

Provide a collection of care tags and have the students read them--possibly giving a different one to each student so he or she can read it to the rest of the class.

G. Conclusion

H. Competency

Demonstrate the care of potted plants.

I. Answers to Evaluation

1. a
2. c
3. b
4. b
5. d

UNIT III - POST-HARVEST HANDLING

Name ____________________

Lesson 3: Caring for Potted Plants

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is the first thing you should do once a potted plant is unpacked?
   - a. Check for insects, damage, and disease.
   - b. Water immediately.
   - c. Leave it in the box for a few hours until it becomes accustomed to the temperature.
   - d. Mist foliage after opening the box.

2. What locations should be avoided in placing flowering potted plants for display in the flower shop?
   - a. In a display case
   - b. Near the main entrance, but away from drafts
   - c. Near heaters and air conditioners
   - d. In the display cooler

3. Why should the foil or container cover be removed when watering plants?
   - a. Keeps the cover looking pretty
   - b. Keeps the plant from sitting in water
   - c. Allows light to reach the entire plant
   - d. Allows air to evaporate water on the container

4. What information is included on a plant care tag?
   - a. Care requirements and grower's name
   - b. Care requirements and name and picture of plant
   - c. Watering instructions and grower's name only
   - d. Watering instructions and light requirements only

5. What should be done with a plant that has insects on it?
   - a. It should be hosed down to wash off the insects.
   - b. It should be sprayed with a bug killer.
   - c. It should be thrown away.
   - d. It should be isolated from other plants.

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 1: Floristry Tools and Supplies

Objective: The student will be able to identify and safely use tools and supplies.

Study Questions

1. **What tools are commonly used in floral shops?**
2. **What are the uses of the following tools: floral knife, wire cutter, ribbon scissors, floral shears, rose stripper, steel pick machine, bunch cutter, and glue gun?**
3. **What are the uses of common floristry supplies?**
4. **What safety precautions must be followed when using floristry tools?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Activity Sheet
    a) AS 1.1: Florist's Tools

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 1: Floristry Tools and Supplies

TEACHING PROCEDURES

A. Introduction

Many specialized tools are used in floral shops. A florist must be able to identify and safely use them.

B. Motivation

Demonstrate the use of some of the common floristry tools, such as a rose thorn stripper or pick machine.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know what tools florists use. Have these tools displayed.

   What tools are commonly used in floral shops?

   a) Floral knife
   b) Wire cutters
   c) Ribbon scissors
   d) Floral shears
   e) Rose stripper
   f) Steel pick machine
   g) Bunch cutter (tabletop or underwater)
   h) Glue gun

2. Show students some of the tools and ask how they are used.

   What are the uses of the following tools: floral knife, wire cutter, ribbon scissors, floral shears, rose stripper, steel pick machine, bunch cutter, and glue gun?

   a) Floral knife - cuts stems
   b) Wire cutter - cuts wire
   c) Ribbon scissors - cut ribbon and fabric
   d) Floral shears - cut heavier material, such as wire and stems
   e) Rose stripper - removes thorns from roses
   f) Steel pick machine - attaches steel picks to stems and other objects for insertion
   g) Bunch cutter - cuts bunches of flower stems
   h) Glue gun - attaches objects in designs

3. Ask students how some of the following supplies are used.

What are the uses of common floristry supplies?

- a) Wire
  - 1) Florist wire - 18" lengths; #16-#30 gauge; binds material and strengthens stems; used in making corsages, boutonnieres, and wedding bouquets
  - 2) Paddle wire - continuous roll; #16-#30 gauge; used in garlands
  - 3) Chicken wire - 12" and 18" widths; 150 ft rolls; covers floral foam in large arrangements
- b) Tape
  - 1) Floral tape - covers stem wire
  - 2) Waterproof tape - secures floral foam in containers
- c) Glue and adhesive
  - 1) Pan glue - for dipping stems and other materials
  - 2) Glue sticks (cool and hot melt) - cool for fresh flowers, foliage, and balloons; hot for dried and silk arrangements, accessories, ribbons, holding devices
  - 3) Floral adhesive (rubber cement) - for fresh designs
- d) Paints (aerosol sprays) - enhance flowers or accent colors
- e) Dyes
  - 1) Dip dyes - flowers are immersed in dye
  - 2) Stem dyes - flower stems are allowed to absorb the color
- f) Corsage and boutonniere pins - secure corsages and boutonnieres to garments
- g) Metal picks - used in a pick machine to help insert stems and other material into floral foam
- h) Wooden picks - attach bows to potted plants and serve as stems for clusters of dried or silk flowers
- i) Floral foam - secures flowers and materials in arrangements
- j) Anchor pins - hold floral foam in a container
- k) Greening pins - secure moss to floral foam
- l) Hyacinth stakes - used to stake blooming plants, but can also be used to help support flowers in a very large arrangement
- m) Water picks - plastic tubes filled with water with rubber lids that have holes in them; stems are pushed through the hole
- n) Orchid grass (Easter grass) - shredded paper used to cushion flowers in a box, usually orchid corsages
- o) Corsage and rose boxes - boxes made especially for packing corsages and unarranged flowers
- p) Sure stick - used to hold dry floral foam in a container
- q) Foil - used in covering the pots of potted plants
- r) Corsage bags - used to cover corsages, boutonnieres, and wedding bouquets
- s) Enclosure cards and envelopes - used to enclose greetings from the sender
- t) Cardette - holds enclosure cards
- u) Care and handling tags - provide information on the care of potted plants or arrangements
- v) Chenille stems - attach bows to arrangements, secure pew bows, create faces and figures in novelty arrangements
- w) Candle stakes - used to secure candles in floral foam

4. Ask students what safety precautions should be followed when using these tools and supplies.

What safety precautions must be followed when using floristry tools?

- a) Knife - Pull the knife through the stem to form a slanted cut, keeping thumb and fingers out of the way.

b) Other cutting tools - Use the proper tool for each project (e.g. wire cutters for wire, ribbon scissors for ribbon). Watch to keep fingers from being cut.

c) Glue gun - Hot glue guns are VERY hot and can cause painful burns. As with all electrical appliances, be sure to keep the glue gun away from water.

d) Steel picks - The sides of the steel picks are razor sharp. Care must be taken in handling them.

F. Other Activities

Make a display of some of the common floristry tools.

G. Conclusion

The florist must learn to use a large number of special tools and supplies in order to create floral designs. Safety precautions must be observed when using some of these tools in order to avoid injury.

H. Competency

Identity and safely use tools and supplies.

I. Answers to Activity Sheet

1.	wire cutters	cuts wire	for the wire cutters, scissors, and shears, students should note that the proper tool should be used and that caution should be taken to avoid having fingers cut
2.	ribbon scissors	cut ribbon and fabric	
3.	floral shears	cut heavier material, such as wire and stems	
4.	rose stripper	removes thorns from roses	
5.	steel pick machine	attaches steel picks to stems and other objects	care must be taken in handling sharp steel picks
6.	bunch cutter	cuts bunches of flower stems	
7.	glue gun	attaches objects in designs	use caution to avoid burns from hot glue; keep away from water

J. Answers to Evaluation

1. c
2. c
3. b
4. a
5. a
6. d
7. a
8. b
9. b

UNIT IV - MECHANICS OF FLORAL DESIGN Name ____________________

Lesson 1: Floristry Tools and Supplies Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. To cover exposed florist wire, the best tape to use is:

   a. Oasis tape.
   b. Scotch tape.
   c. Floral tape.
   d. Waterproof tape.

2. Which pick is very sharp and can easily cut you?

   a. Water pick
   b. Wooden pick
   c. Metal pick
   d. Knife pick

3. Which is a U-shaped metal pin used to secure moss to arrangements?

   a. Corsage pin
   b. Greening pin
   c. Pick pin
   d. Boutonniere pin

4. Which pick is used to secure bows to potted plants?

   a. Wooden pick
   b. Steel pick
   c. Water pick
   d. Knife pick

5. Which tool may be used to cut stems under water?

   a. Bunch cutter
   b. Pick machine
   c. Rose stripper
   d. Wire cutter

6. Why are water picks used?

   a. To anchor stems in floral foam
   b. To anchor foliage in the container
   c. To provide a holding device for stems
   d. To provide water to individual stems

7. Which type of wire would you use to strengthen stems?

   a. Florist wire
   b. Paddle wire
   c. Chicken wire
   d. Baling wire

8. What is the best tool for cutting the stems of flowers?

   a. Floral shears
   b. Floral knife
   c. Ribbon scissors
   d. Wire cutter

9. What is used to secure flowers and materials in arrangements?

   a. Chenille stems
   b. Floral foam
   c. Orchid grass
   d. Sure stick

Lesson 1: Floristry Tools and Supplies

Name ______________________________

Florist's Tools

List the common floristry tools, their uses, and any safety precautions that should be taken in their use.

Tool	Uses	Safety Precautions
ex. floral knife	cutting stems	cut away from hands, keep knife sharp

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 2: Constructing Bows

Objective: The student will be able to construct bows using basic ribbon widths.

Study Questions

1. **What are the common fabrics and widths of ribbons?**
2. **What tips make bow construction easier?**
3. **What are the steps in constructing a bow?**
4. **What is a jiffy bow?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheet
    a) JS 2.1: Constructing a Bow

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 2: Constructing Bows

TEACHING PROCEDURES

A. Review

The last lesson addressed tools and supplies commonly used in floristry. This lesson will discuss bows, which are an integral part of many designs, from corsages to potted plants to funeral pieces. Every worker in a flower shop should be proficient in making bows of different sizes from various materials.

B. Motivation

1. Show students a completed bow and length of ribbon. Ask if they know how to get the length of ribbon to look like the completed bow.

2. Show examples of corsages with bows of varying sizes. Some bows could be too small and some too large for the corsage. Ask students which corsage they would purchase. Why? Point out that some corsages might not be purchased because the bow is an inappropriate size.

C. Assignment

D. Supervised Study

E. Discussion

1. Show the students several different sizes and fabrics of ribbons to give them an idea of the variety available. If possible, have ribbons from different manufacturers to show the slight variations in width.

   What are the common fabrics and sizes of ribbons?

   a) Fabrics
      1) Satin
      2) Velvet
      3) Wired ribbon
      4) Burlap
      5) Cotton
      6) Lace
   b) Sizes - ribbon widths may vary slightly depending on the manufacturer
      1) #3 (⅝") - corsages
      2) #9 (1⅜") - floral arrangements
      3) #40 (2⅞") - wedding pew bows and funeral pieces

2. Point out to students that constructing a bow can be tricky. A list of helpful tips has been compiled to make it easier.

   What tips make bow construction easier?

   a) Gather all materials before beginning.
   b) Keep the right face of the ribbon turned outward.
   c) Use the ribbon directly from the bolt.

d) Hold the bow in one hand while working the ribbon back and forth with the other hand.
e) Make the bow in proportion to the arrangement; it should not dominate the arrangement, but serve as an accessory.
f) Make sure tail length is in proportion to ribbon width. The tail should generally be no longer than the longest loop of the bow.
g) Use a bow without a center loop to tuck under a flower or deep within an arrangement.
h) Construct bows used on church pews out of #40 ribbon.
i) Make some bows in advance.
j) Practice making bows.

3. Ask the students if they know how to construct a bow. Demonstrate for them how to make a bow. After the demonstration, have students practice making bows using various ribbon widths.

What are the steps in constructing a bow?

a) With the right side out, begin with a tail or length of ribbon about 2" long.
b) Make a loop around the left thumb (right thumb if left handed).
c) Twist the ribbon one turn under the thumb, gripping the ribbon with the thumb and middle finger.
d) Make a loop in the ribbon, bringing the ribbon back between the thumb and middle finger, twisting the ribbon, and then form a loop on the other side.
e) Continue making loops until the desired number of loops is reached.
f) After making the last loop, leave another tail to match the first one.
g) Cut the ribbon tails at an angle.
h) Tie off the ribbon with wire, chenille, or ribbon. Slip the tie under the thumb, then carefully tighten the bow together.
i) Insert the bow into the corsage, arrangement, or plant.

4. Show the students an unmade jiffy bow and ask if they know what it is. Demonstrate how a jiffy bow is made.

What is a jiffy bow?

Jiffy bows, or pull bows, are ribbons that can quickly and easily be made into bows by pulling a smaller string. This forms the loops and makes a perfect bow in a short time.

F. Other Activities

1. Have students make a bow using the various widths (#3, #9, and #40) of ribbon.

2. Have students cut a small piece of #3, #9, and #40 ribbon to label and tape in their notebooks.

G. Conclusion

The designs of the florist are often completed by the inclusion of a bow. Often designers themselves make the bows out of ribbon of different materials and widths that has been purchased for that purpose, although ready-made jiffy bows may also be used.

H. Competency

Construct bows using basic ribbon widths.

I. Answers to Evaluation

1. c
2. d
3. c
4. a
5. d

UNIT IV - MECHANICS OF FLORAL DESIGN

Name ____________________

Lesson 2: Constructing Bows

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which size ribbon is often used for corsages?

   a. #9
   b. #40
   c. #3
   d. #2

2. #9 ribbon can be used for:

   a. Corsages.
   b. Wedding pew bows.
   c. Terrarium.
   d. Potted plants.

3. What is the most commonly used material for ribbon?

   a. Burlap
   b. Velvet
   c. Satin
   d. Cotton

4. Why is it important to twist the ribbon when using single-faced ribbon?

   a. By twisting the ribbon, the right side is always out.
   b. By twisting the ribbon, the right side is facing forward
   c. Twisting the ribbon creates a puffy look.
   d. Twisting the ribbon gives it a crinkled look.

5. What size ribbon is used for bows to be attached to church pews?

   a. #3
   b. #9
   c. #30
   d. #40

JS 2.1 Constructing a Bow

Objective: Upon completion of this job sheet, the student will be able to construct a bow.

Materials and Equipment:

1. #3, #9, or #40 ribbon
2. Wire or chenille
3. Ribbon shears
4. Corsage, arrangement, or plant

Procedure:

1. Select the appropriate size ribbon.

2. With the right side out, begin with a tail or length of ribbon about 2" long.

3. Make a loop around your left thumb, or the right thumb if left handed (Figure 1.1).

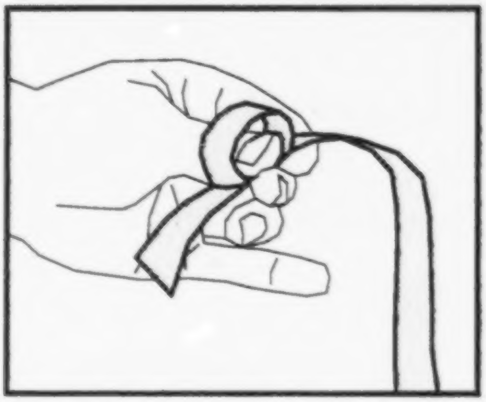

Figure 1.1

4. Twist the ribbon one turn under your thumb, gripping the ribbon with the thumb and middle finger (Figure 1.2).

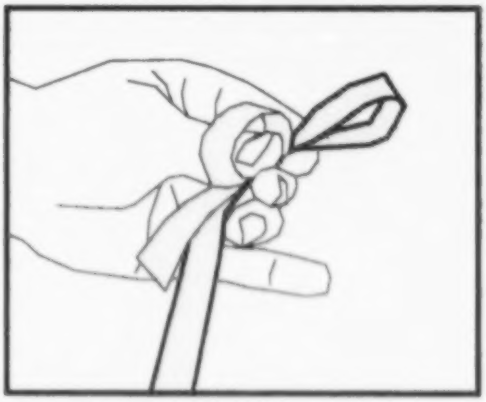

Figure 1.2

5. Make a loop in the ribbon, bringing the ribbon back between the thumb and middle finger, twisting the ribbon, and then form a loop on the other side (Figure 1.3).

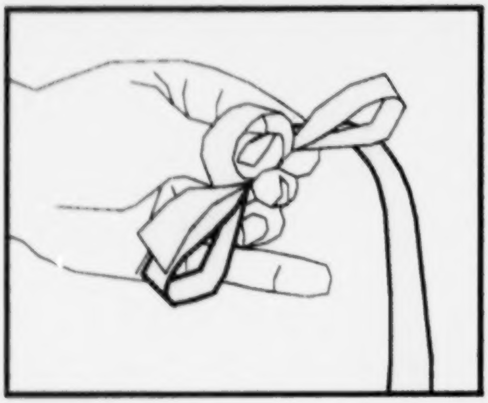

Figure 1.3

6. Continue making loops until the desired number of loops is reached (Figure 1.4).

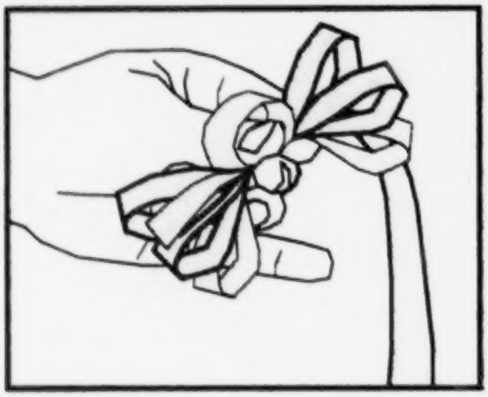

Figure 1.4

7. After making the last loop, leave another tail to match the first one.

8. Cut the ribbon tails at an angle.

9. Tie off the ribbon with wire, chenille, or ribbon. Slip the tie under your thumb, then carefully tighten the bow together (Figure 1.5).

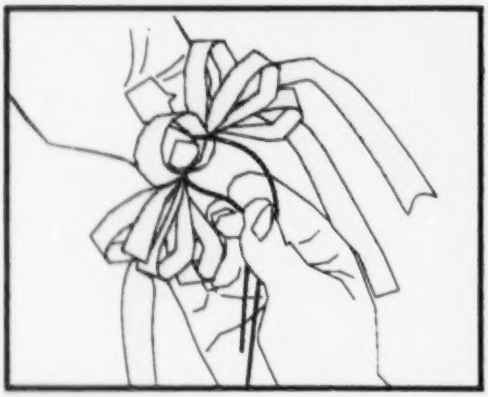

Figure 1.5

10. Insert the bow into a corsage, arrangement, or plant.

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JS 2.1 Continued

Evaluation Criteria:

Points:

_____ If a single-faced ribbon is used, the right side is always kept to the outside

_____ Center loop is present

_____ At least three loops are present on each side

_____ Ribbon tails are cut at an angle

_____ Bow is tied off tightly and securely

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 3: Containers

Objective: The student will be able to select and prepare appropriate containers.

Study Questions

1. **What are some of the common styles or shapes of containers?**
2. **What materials are commonly used to construct containers?**
3. **What factors affect the selection of a container?**
4. **What holding devices are commonly used?**
5. **What factors affect the selection of a holding device?**
6. **How is floral foam prepared for use in an arrangement?**
7. **How is a frog anchored to a container?**
8. **How is a grid constructed to anchor flowers?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets
    - a) JS 3.1: Preparing Floral Foam
    - b) JS 3.2: Anchoring a Frog to a Container
    - c) JS 3.3: Constructing a Grid

Lesson 3: Containers

TEACHING PROCEDURES

A. Review

In the last lesson, bow construction tips and techniques were presented. This lesson will focus on selecting and preparing the container for an arrangement.

B. Motivation

Display several containers in front of the classroom. If possible, have arrangements in inappropriate containers and ask the students what is wrong with the displays.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what styles or shapes of containers florists commonly use.

   What are some of the common styles or shapes of containers?

   a) Bowls
   b) Trays
   c) Tall vases
   d) Urns
   e) Compotes

2. Ask students what materials are commonly used to construct containers.

   What materials are commonly used to construct containers?

   a) Plastic - less expensive; available in many colors and styles
   b) Glass - usually clear, green, or frosted; some are less expensive
   c) Ceramics - more expensive; good for permanent arrangements
   d) Wicker baskets - need liners
   e) Papier-mâché - temporary; usually used for sympathy arrangements

3. Ask students what things they need to consider when choosing a container for an arrangement.

   What factors affect the selection of a container?

   a) Size of the finished arrangement
   b) Size and weight of the flowers
   c) Color of the container in relation to the arrangement
   d) Use or occasion of the finished product
   e) Price
   f) Mood or tone added to the arrangement by the container

4. Ask students how arrangements are held in containers.

What holding devices are commonly used?

a) Floral foams - wet foams for fresh arrangements; dry foams for silk and dried arrangements
b) Shredded Styrofoam™
c) Styrofoam™
d) Pin holder, or frog
e) Marbles

5. Ask students what factors should be considered when deciding what holding device to use.

What factors affect the selection of a holding device?

a) Material used (dried, fresh, or silk)
b) Weight and size of the arrangement
c) Thickness of the flower stem
d) Type of container
e) Price of the arrangement
f) Use of the arrangement
g) Transport of the arrangement

6. Ask students how to properly soak wettable floral foam for use in arranging fresh flowers.

How is floral foam prepared for use in an arrangement?

a) Allow the foam to naturally soak up water - do not force it. When it stops bubbling, the foam is saturated. Leave 1" of foam above the lip of the container, 1 ½" for larger stems. Leave space between the container and the foam to hold water.
b) If the foam is not tightly wedged into the container, secure the foam using waterproof tape. The type of container usually determines whether or not waterproof tape is used.

7. Ask students how a frog or pin holder is secured to a container.

How is a frog anchored to a container?

A frog, or pin holder, can be glued with pan melt glue if it will be in the container permanently. If not, use a roll of florist clay. Form the clay into a ring around the edge of the frog, pressing it firmly into the container.

8. Ask students what a grid is and how it can be used to arrange flowers.

How is a grid constructed to anchor flowers?

a) A grid is constructed by taping several rows of clear waterproof tape horizontally and then vertically across the top of the container.
b) Foliage can also be used to construct a grid. After the leaves that will be under water are removed, stems are placed in the vase at an angle to create a tight interlocking grid. This process is also called lacing.

F. Other Activities

Collect pictures of various containers that could be used for floral arranging. Indicate the best occasion for the use of each one.

G. Conclusion

Designers may choose from many different styles, sizes, materials, and colors when selecting the appropriate container to be used for a particular floral arrangement. They must also be familiar with various holding devices in order to utilize the best one for a particular arrangement.

H. Competency

Select and prepare appropriate containers.

I. Answers to Evaluation

1. a
2. c
3. b
4. b
5. a
6. d

UNIT IV - MECHANICS OF FLORAL DESIGN

Name ______________________

Lesson 3: Containers

Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following containers is inexpensive and temporary?

   a. Papier-mâché
   b. Plastic
   c. Glass
   d. Wicker

2. What material is used to temporarily anchor a frog to a container?

   a. Tape
   b. Pan melt glue
   c. Florist clay
   d. Grid

3. What must a designer do to prepare a wicker basket for a fresh arrangement?

   a. Add floral foam.
   b. Add a liner.
   c. Construct a grid.
   d. Lace the flower stems.

4. Dry foam should be used for:

   a. Arranging fresh flowers.
   b. Arranging dried flowers.
   c. Creating a dish garden for a desert scene.
   d. Arranging fresh fruit.

5. What happens when floral foam becomes saturated?

   a. The foam stops bubbling.
   b. The foam rises to the top.
   c. The foam turns brown.
   d. All of the above.

6. What kind of tape should be used to anchor foam to the container?

   a. Floral tape
   b. Green masking tape
   c. Invisible tape
   d. Waterproof tape

JS 3.1: Preparing Floral Foam

Objective: Upon completion of this job sheet, the student will be able to prepare floral foam for use in an arrangement.

Materials and Equipment:

1. Floral foam
2. Water
3. Knife
4. Container for arrangement

Procedure:

1. Place the foam in water.

2. Allow the foam to naturally soak up water - do not push it under.

3. When it stops bubbling, the foam is saturated. Remove it from the water.

4. Cut the foam to fit the container.

5. Place the foam in the container. Leave 1" of foam above the lip of the container, 1½" for larger stems. Leave space between the container and the foam to hold water.

6. If the foam is not tightly wedged into the container, secure the foam to the container using waterproof tape. One piece is usually enough except for very large pieces of foam.

Evaluation Criteria:

Points:

_____ Foam was properly soaked (allowed to soak up water without being pushed under the water)

_____ Bubbling stopped before the foam was removed from the water

_____ Foam was cut to fit the container

_____ Waterproof tape was used to hold foam in container if needed (if the foam does not fit tightly into the container, the arrangement might fall over)

_____ Total Points

JS 3.2: Anchoring a Frog to a Container

Objective: Upon completion of this job sheet, the student will be able to anchor a frog to a container.

Materials and Equipment:

1. Frog
2. Pan melt glue
3. Florist clay
4. Container for arrangement
5. Heat-proof container to melt glue
6. Hot plate

Procedure:

Permanent arrangement:

1. Heat the glue in the pan.
2. Make sure the frog and container are clean and dry.
3. Place a few drops of glue where the frog will be placed.
4. Quickly position the frog over the glue, pressing it firmly down.
5. Allow the glue to dry before arranging flowers.

Temporary arrangement:

1. Roll a piece of florist clay into a long cylinder or "snake."
2. Make sure the frog and container are clean and dry.
3. Place the clay around the bottom edge of the frog. Excess clay can be pinched off and saved for later use.
4. Firmly press the frog into the container.

Evaluation Criteria:

Points

_____ Holder and container are clean and dry

_____ Frog is securely fastened to the container

To test, lift the container by holding onto the frog. The anchoring should be secure enough to bear the weight of the container.

_____ Total Points

JS 3.3: Constructing a Grid

Objective: Upon completion of this job sheet, the student will be able to construct a grid to anchor flowers.

Materials and Equipment:

1. Container
2. Clear waterproof tape
3. Foliage, such as leatherleaf
4. Water

Procedure:

Constructing a Grid Using Tape:

1. Place several rows of tape about ½" apart across the top of the container. Make sure the ends of the tape do not extend very far over the edge of the container (about ½").

2. Place several rows of tape about ½" apart perpendicular to the first rows of tape. They will form a checkerboard grid like that shown in Figure 3.1.

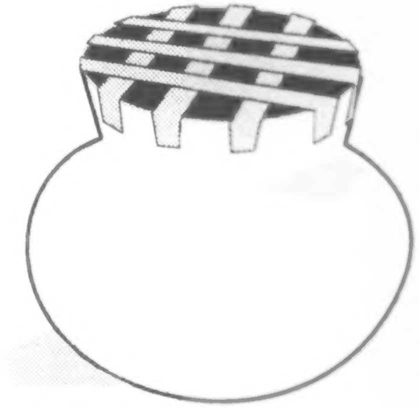

Figure 3.1

Constructing a Grid Using Foliage:

1. Fill the container two-thirds full with water.

2. Remove the leaves on the foliage that will be under water.

3. Insert the stems at an angle to create a tight interlocking grid. See Figure 3.2.

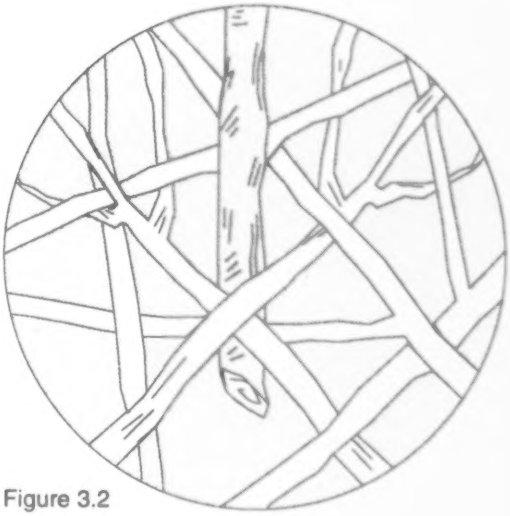

Figure 3.2

Evaluation Criteria:

Points:

Tape grid:

_____ Tape is ½" apart across the top of the container both horizontally and vertically

_____ Sides of the tape extend about ½" over the top of the container

Foliage grid:

_____ Container is two-thirds full of water

_____ Stems are inserted into the container to create an interlocking grid to support the flowers

_____ All leaves are removed that will be under water

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 4: Wiring and Taping

Objective: The student will be able to perform basic wiring and taping techniques.

Study Questions

1. **Why are flowers wired?**
2. **What are the different gauges of florist wire and how are they used?**
3. **What are the different wiring methods?**
4. **How is a flower wired using the piercing method?**
5. **How is a flower wired using the insertion method?**
6. **How is a flower wired using the clutch method?**
7. **How is a flower wired using the hook method?**
8. **How is a flower wired using the hairpin method?**
9. **How is a leaf wired using the stitch method?**
10. **How is a flower wired using the straight-wire method?**
11. **What is floral tape and why is it used?**
12. **How is floral tape used?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets

   a) JS 4.1: Wiring Flowers
   b) JS 4.2: Taping Flowers

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 4: Wiring and Taping

TEACHING PROCEDURES

A. Review

Lesson 3 presented information on properly preparing the container. This lesson will present techniques for wiring and taping flowers for use in floral designs.

B. Motivation

Give students tape, wire (several different gauges), and some flowers. Without demonstrating the proper techniques, ask them to wire the flowers for use in an arrangement. Then have them tape a flower.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why flowers are wired. Show examples of flowers that have been wired and ones that have not been wired.

Why are flowers wired?

a) Roses are often wired in arrangements to ensure that they do not develop "bent necks."
b) Wire is used to strengthen weak stems.
c) Wire is used in arrangements that will be transported long distances.
d) Wire is used for shaping flowers.
e) In corsages, wire is used to replace stems, eliminating the bulkiness of the stem and leaving the flower flexible.

2. Ask students what the different gauges of floral wire are and how they are used.

What are the different gauges of florist wire and how are they used?

a) 18 gauge - used in making floral headpieces and tying off wedding pew bows; also serves as a base for wrist corsages
b) 24 gauge - commonly used in corsages; usually for roses, carnations, and heavy flowers
c) 26 and 28 gauges - commonly used in corsages; for more delicate flowers

3. Ask students what the different wiring methods are.

What are the different wiring methods?

a) Piercing - roses, carnations, and other flowers with a large calyx
b) Insertion - daffodils, asters, and other flowers with well-attached heads
c) Clutch - filler flowers and small mass flowers like baby's breath and statice
d) Hook - chrysanthemums, daisies, and other flowers with flattened heads, hard centers, and no apparent calyx

e) Hairpin - tubular flowers like stephanotis
f) Stitch - foliage with broad leaves like camellia and ivy
g) Straight-wire - strengthens stems and supports necks of flowers like roses

4. Ask students how a flower is wired using the piercing method.

How is a flower wired using the piercing method?

a) Insert the wire halfway through the calyx of the flower.
b) Bend both ends down.
c) Slightly twist the wire together.

5. Ask students how a flower is wired using the insertion method.

How is a flower wired using the insertion method?

a) Insert the wire inside the stem.
b) Push the wire up until the wire is in the flower head.
c) Make sure the wire is not visible in the head.

6. Ask students how a flower is wired using the clutch wire method.

How is a flower wired using the clutch method?

a) Wrap a light wire around the stem several times.
b) Bend the wire ends alongside the stem.

7. Ask students how a flower is wired using the hook wire method.

How is a flower wired using the hook method?

a) Insert the wire into the base of the flower head until it comes out the top.
b) Bend a small hook in the top of the wire.
c) Pull the hook back into flower.
d) Make sure the wire is not visible in the head.

8. Ask students how a flower is wired using the hairpin method.

How is a flower wired using the hairpin method?

a) Bend the wire into a large U-shape and insert a small piece of moist cotton into the bend.
b) Pull the wire down into the center of the flower.
c) Wrap it around the stem.

9. Ask students how a leaf is wired using the stitch method.

How is a leaf wired using the stitch method?

a) Insert the wire midway up the leaf blade, making a small stitch by piercing the wire through the back of the leaf and then back through the other side, crossing the central rib.
b) Bend the wire down alongside the central rib.
c) Wrap one end of the wire around both the stem and the other end of the wire.

10. Ask students how to wire a flower with a stem for use in an arrangement.

How is a flower wired using the straight-wire method?

a) Stick the end of the wire into the base of the flower.
b) Wind the wire down between the leaves on the stem.

11. Ask students what floral tape is and why it is used.

What is floral tape and why is it used?

a) Florist's tape, or floral tape, is crepe paper with a light waxy coating. When stretched, it will become sticky and adhere to itself.
b) Floral tape is used in corsages to cover the wire. It secures the wire to the flower stem, tapes flowers together, and holds moisture around the stem ends.

12. Ask students how floral tape is used. Demonstrate taping a stem. Have students tape a length of wire. Point out that if the designer is left-handed the technique would be performed using the opposite hands.

How is floral tape used?

a) Place the flower in the left hand. Hold the tape in the right hand.
b) Begin at the calyx of the flower.
c) Wrap the stem tightly with tape.
d) With the left hand, turn the flower while stretching and pulling the tape at a downward angle with the right hand.
e) Make sure the tape is smooth and not bulky.

F. Other Activities

Have students put together a wire sampler for them to keep that includes pieces of wire in gauges 16 through 30.

G. Conclusion

Flowers may be wired or taped for use in floral designs. The designer chooses which wiring method to use based on the type of flower and/or purpose for wiring. Taping is used when constructing corsages.

H. Competency

Perform basic wiring and taping techniques.

I. Answers to Evaluation

1. c
2. a
3. d
4. a
5. c
6. b
7. a
8. d

UNIT IV - MECHANICS OF FLORAL DESIGN Name ______________________

Lesson 4: Wiring and Taping Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Floral tape is used to:

   a. Hold stems and flower arrangements up.
   b. Tape boxes shut.
   c. Cover wire in corsages and boutonnieres.
   d. Hold an oasis in a container.

2. #18 wire is:

   a. Thicker than #22 wire.
   b. Nonexistent.
   c. Used to wire baby's breath.
   d. 18" long.

3. Which of the following is NOT a reason why a flower is wired?

   a. Wiring adds flexibility to flowers.
   b. Wiring allows flowers to be shaped.
   c. Wiring strengthens weak stems.
   d. Wiring adds a new look to the arrangement.

Match the wiring technique on the right with the appropriate flower. Some responses may be used more than once.

4. _____ Rose

5. _____ Chrysanthemum

6. _____ Baby's breath

7. _____ Carnation

8. _____ Daffodil

a. Piercing method

b. Clutch method

c. Hook method

d. Insertion method

e. Hairpin method

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JS 4.1: Wiring Flowers

Objective: Upon completion of this job sheet, the student will be able to wire flowers using appropriate wiring techniques.

Materials and Equipment:

1. Various gauges of wire
2. Variety of flowers (e.g. rose, carnation, pompon, baby's breath)
3. Knife
4. Wire cutters

Procedure:

1. Select the appropriate size wire for the flower to be wired.

2. Cut off the stem about ¼" below the calyx or the base of the flower if it is to be used in a corsage.

3. Determine the best wiring method for the type of the flower.

4. Wire the flower following appropriate techniques.

Piercing Method

1. Insert the wire halfway through the calyx of the flower.

2. Bend both ends down.

3. Slightly twist the wire together (Figure 1.1).

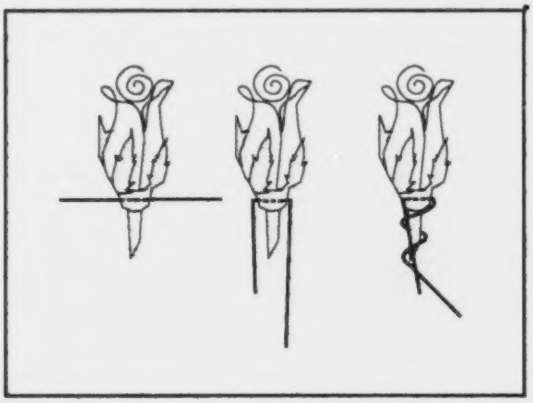

Figure 1.1

Insertion Method

1. Insert the wire inside the stem.

2. Push the wire up until the wire is in the flower head (Figure 1.2).

3. Make sure the wire is not visible in the head.

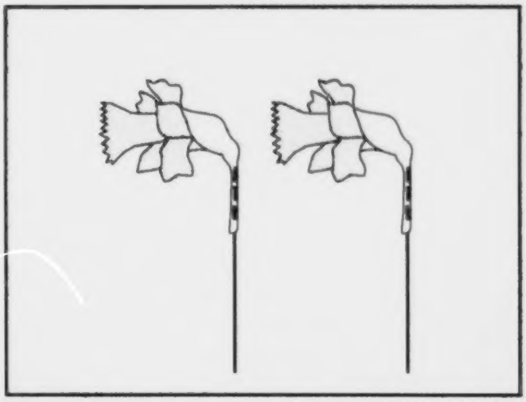

Figure 1.2

Clutch Method

1. Wrap a light wire around the stem several times.
2. Bend the wire ends alongside the stem (Figure 1.3).

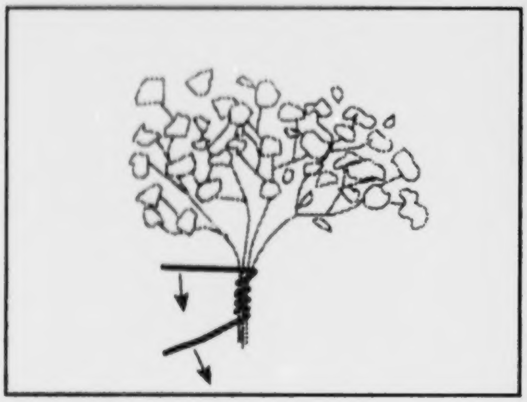

Figure 1.3

Hook Method

1. Insert the wire into the base of the flower head until it comes out the top.
2. Bend a small hook in the top of the wire.
3. Pull the hook back into the flower (Figure 1.4).
4. Make sure the wire is not visible in the head.

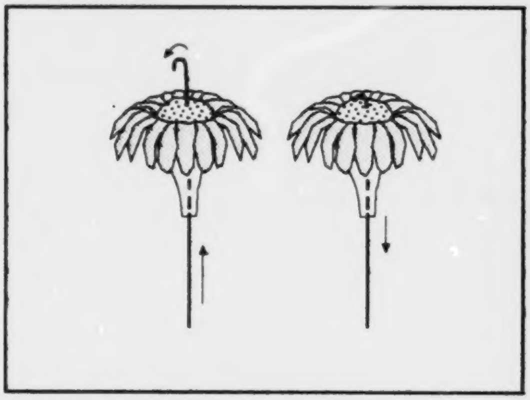

Figure 1.4

Hairpin Method

1. Bend the wire into a large U-shape and insert a small piece of moist cotton into the bend.
2. Pull the wire down into the flower (Figure 1.5).
3. Wrap it around the stem.

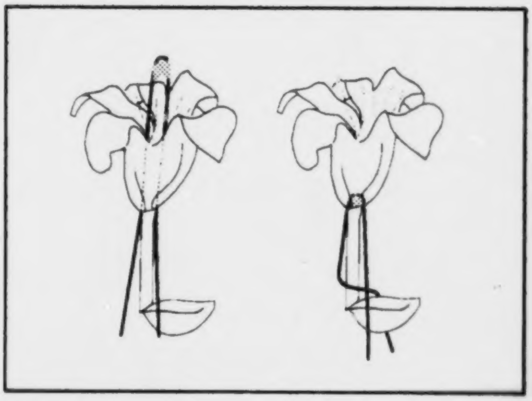

Figure 1.5

Stitch Method

1. Insert wire halfway up the leaf blade, making a small "stitch" by piercing through the back of the leaf near the central rib and then back through the other side.

2. Bend wire down alongside the central rib.

3. Wrap one end of the wire around the stem and the other end of the wire (Figure 1.6).

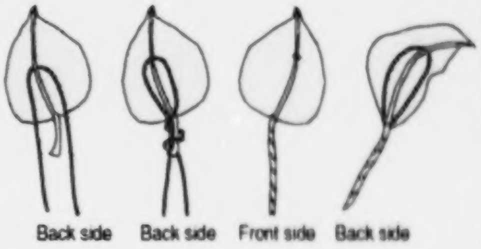

Figure 1.6

Straight-Wire Method

NOTE: The stem is not removed for this method, which is used mainly for vase arrangements.

1. Stick the end of the wire into the base of the flower.

2. Wind the wire down between the leaves of the stem.

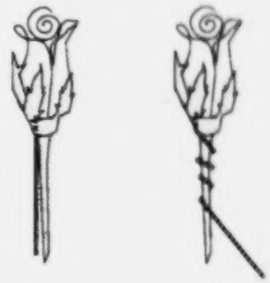

Figure 1.7

Evaluation Criteria:

Points:

_____ Stem is cut off if flowers are to be used for a corsage

Piercing Method:

_____ Wire is the appropriate weight for the flower to be wired (the doubled wire can support the weight of the flower when held horizontally)

_____ Wire is inserted half way through the calyx

_____ Ends of the wire are bent down

_____ Wires are slightly twisted together

Insertion Method:

_____ Wire is inserted inside the stem

_____ Wire is not visible inside the head

Clutch Method:

_____ Wire is wrapped firmly around the stems

_____ Appropriate weight wire is used for the flower to be wired (too heavy a wire will not wrap well around delicate stems/flowers)

Hook Method:

_____ Wire is inserted in the base of the flower head

_____ Hook is not visible in the head

Hairpin Method:

_____ Wire is bent into a large U-shape with cotton inserted

_____ Wire is pulled down into the flower

_____ Wire is wrapped correctly around the stem

Stitch Method:

_____ Wire is inserted halfway up the leaf blade

_____ Wire has been inserted in and out of the mid-rib of the leaf with a small amount of wire visible

_____ Wire is wrapped around the stem

Straight-Wire Method:

_____ Wire is inserted into the base of the flower

_____ Wire is wound down between the leaves of the stem

_____ Total Points

JS 4.2: Taping Flowers

Objective: Upon completion of this job sheet, the student will be able to tape flowers using the appropriate technique.

Materials and Equipment:

1. Floral tape
2. Flowers that have already been wired

Procedure:

1. Hold the flower in your left hand. Hold the tape in the right.

   NOTE: If you are left handed, reverse the placement of the flower and tape for this procedure.

2. Begin at the calyx of the flower (Figure 2.1).

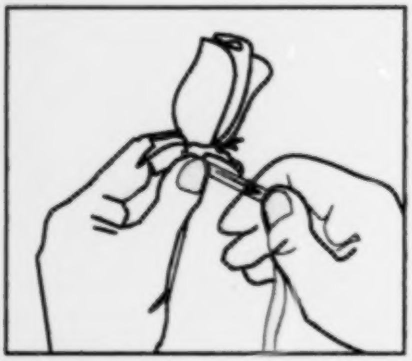

Figure 2.1

3. Wrap the stem tightly with tape.

4. With your left hand, turn the flower while stretching and pulling the tape at a downward angle with the right hand (Figures 2.2 and 2.3).

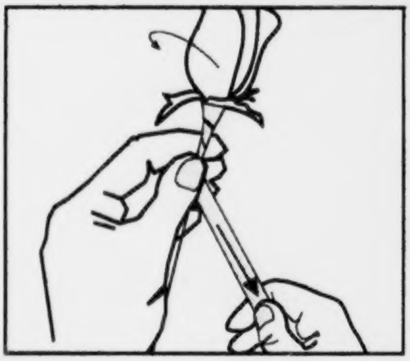

Figure 2.2

105

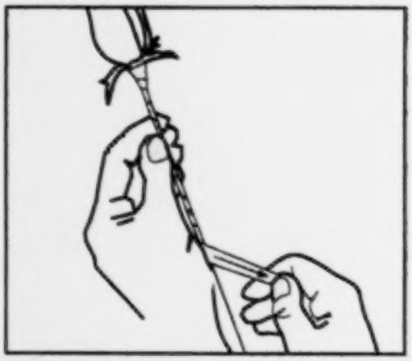

Figure 2.3

5. Make sure the tape is smooth and not bulky (Figure 2.4).

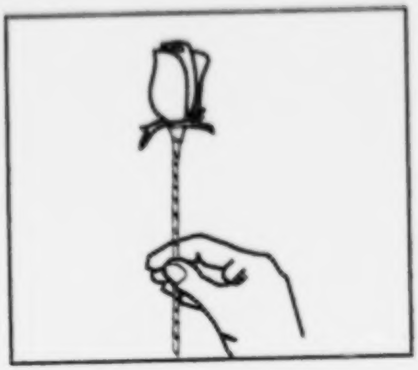

Figure 2.4

Evaluation Criteria:

Points:

_____ If the flower has a calyx, the tape should cover the lower half of the calyx

_____ Tape has been stretched and pulled the length of the wire

_____ If the tape is properly stretched, the tape will be lighter in color and will be difficult to pull off the wire

_____ Total Points

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 5: Packaging Flowers and Arrangements for Delivery

Objective: The student will be able to package flowers and arrangements for delivery.

Study Questions

1. **How are cut flowers wrapped and boxed for sale?**
2. **How are floral designs protected during transportation?**
3. **How are potted plants dressed?**
4. **How are plant sleeves used?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit IV.
2. Job Sheets

    a) JS 5.1: Wrapping Cut Flowers
    b) JS 5.2: Boxing Cut Flowers
    c) JS 5.3: Preparing Designed Arrangement for Transportation
    d) JS 5.4: Dressing Potted Plants
    e) JS 5.5: Sleeving Potted Plants

UNIT IV - MECHANICS OF FLORAL DESIGN

Lesson 5: Packaging Flowers and Arrangements for Delivery

TEACHING PROCEDURES

A. Review

The previous lesson addressed why flowers are wired and taped and presented information on wiring and taping techniques. This lesson will focus on packaging techniques.

Properly wrapping flowers and arrangements for delivery not only adds to the attractiveness of the product, but also offers protection against physical damage and extreme temperatures during delivery.

B. Motivation

1. Show students a wrapped rose box with a bow tied around it. Ask if they would like to receive such a package.
2. Have a student sleeve a plant before instructing the class on the proper procedure. Discuss why it is important to properly sleeve a plant.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask the students how cut flowers are wrapped and boxed for sale.

   How are cut flowers wrapped and boxed for sale?

   a) Wrapping - Cut flowers that are not arranged are purchased cash-and-carry are usually wrapped in green waxed tissue paper. To wrap cut flowers in paper, follow these steps.
      1) Lay a sheet of florist paper on the work table.
      2) Arrange a few leaves of foliage, such as leatherleaf fern, pointing toward one corner of the paper.
      3) Place flowers on top of the foliage. If possible, avoid piling flower heads on top of each other.
      4) Fold the lower corner of the paper up over the stems.
      5) Fold in each side.
      6) Roll the paper around the flowers.
      7) The paper is then cone-shaped and needs to be tightened around the lower end of the stems and flared out at the flower end.
      8) Tie a ribbon around the wrap or staple the ends.

   b) Boxing
      1) Packaging flowers in a white cardboard box
         (a) Line the box with florist paper with paper extending on either side.
         (b) Arrange a layer of foliage on the bottom of the box.
         (c) Arrange flowers on top of the foliage. If using roses, the florist may use water picks or secure a floral pack to the bottom and insert the stems. Flowers should be placed in rows with as little overlap of heads as possible.
         (d) Mist the flowers and foliage lightly with water.

        (e) Place a care tag and a pack of floral preservative in the box.
        (f) Fold the paper over the flowers and foliage.
        (g) Add the lid to the box.
        (h) Secure the box with ribbon.
        (i) Add a bow secured with an enclosure card for delivery.
    2) Packaging flowers in a clear plastic box
        (a) Line the bottom of the box with foliage.
        (b) Layer the flowers.
        (c) Use foam or water picks if packaging delicate flowers such as roses.
        (d) Mist the flowers and foliage.
        (e) Snap the box shut.
        (f) Add a bow and enclosure card.

2. Ask students how flower arrangements are prepared for delivery.

How are floral designs protected during transportation?

a) Floral arrangements are often wrapped for delivery, especially if the weather is very cold. They are usually wrapped in florist paper.
    1) Set arrangement in center.
    2) Bring up four corners to top.
    3) Staple.
b) Compote (footed container) arrangements need to be placed in a box specially designed for transporting arrangements or in a box with crumpled paper stuffed around the base of the arrangement.
c) A plastic sack may be placed around some arrangements.
d) During warm weather, wrapping may not be necessary.

3. Ask students what should be done to make potted plants more attractive.

How are potted plants dressed?

a) Groom the plant; remove yellow or dying leaves and old flowers.
b) Clean the outside of the pot.
c) Check the plant for insects.
d) Insert a care tag.
e) Water and drain the plant well.
f) Cover the pot.
    1) Select foil and ribbon to complement the plant.
    2) Cut the foil to the appropriate size.
    3) Place the plant on the foil with the best side toward you.
    4) If folding down the top edges, do so now.
    5) Make sure the front of the foil will cover the pot.
    6) With the left hand, gently gather the foil while working around the left side.
    7) With the right hand, gently pull the corners upward while working around the pot.
    8) After all the foil is around the pot, bend the front two corners down to frame the front.
    9) Make a bow with #40 or #9 ribbon.
    10) Insert the bow with wooden pick.
    11) Some plants come from the grower with pre-formed speed covers on the pots. These covers are available in many colors and sizes.
    12) For more expensive plants, a wicker basket is often used for a cover.

4. Show students a plant sleeve. Ask what it is and how it is used.

How are plant sleeves used?

a) Plant sleeves are pieces of material, such as plastic, fiber mesh, or paper, shaped into a cone.
b) Slip a plant into the sleeve, fold the top over, then staple it shut.
c) The sleeve protects the potted plant during delivery and from cold weather.
d) If it is extremely cold, double sleeving may be necessary.
e) Plants should be sleeved just before shipping. They should be removed from the sleeves as soon as possible. Never store a potted plant in a sleeve, because it can cause the premature aging of the plant.

F. Other Activities

G. Conclusion

Properly packaging flowers and arrangements ensures that they will be in good condition for the customer or recipient of a delivery. Cut flowers should be either wrapped or boxed for delivery. Floral designs must also be wrapped appropriately for delivery in order to protect them. Potted plants should be dressed for sale and prepared for delivery, which can be done most easily by using a plant sleeve.

H. Competency

Package flowers and arrangements for delivery.

I. Answers to Evaluation

1. c
2. b
3. c
4. a
5. b

UNIT IV - MECHANICS OF FLORAL DESIGN
Name ______________________

Lesson 5: Packaging Flowers and Arrangements for Delivery
Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. When wrapping cut flowers for delivery, how should they be placed on the sheet of wrapping paper?
   - a. Parallel to the top
   - b. Upside down
   - c. Pointing toward one corner
   - d. Pointing toward the center

2. What else is often included with cut flowers in a box?
   - a. Delivery instructions and packet of preservative
   - b. Packet of preservative and care card
   - c. Care card and delivery instructions
   - d. Delivery instructions and water mister

3. What ribbon sizes are generally used to decorate potted plants?
   - a. #3 and #9
   - b. #9 and #27
   - c. #9 and #40
   - d. #27 and #40

4. Why are plant sleeves necessary?
   - a. They protect the plant during delivery.
   - b. Sleeves add decoration.
   - c. Plant sleeves help dress the plant.
   - d. They are unnecessary.

5. Which technique helps prevent the flowers from being crushed when being wrapped or boxed?
   - a. Arranging flowers by alternating them from one end of the box to the other end
   - b. Arranging flowers so that heads are not directly on top of other heads
   - c. Arranging foliage between layers of flowers
   - d. Arranging flowers with stems in foam or water picks

JS 5.1: Wrapping Cut Flowers

Objective: Upon completion of this job sheet, students will be able to wrap cut flowers using the appropriate technique.

Materials and Equipment:

1. Cut flowers and foliage
2. Green waxed tissue paper
3. Ribbon or stapler
4. Scissors

Procedure:

1. Lay a sheet of florist paper on the worktable.

2. Arrange a few leaves of foliage, such as leatherleaf, pointing toward one corner of the paper.

3. Place flowers on top of the foliage. If possible, avoid piling flower heads on top of each other.

4. Fold the lower corner of the paper up over the stems (Figure 1.1).

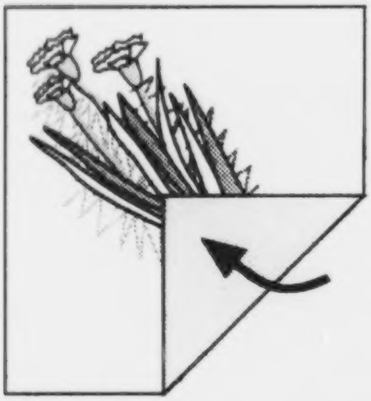

Figure 1.1

5. Fold in each side (Figure 1.2).

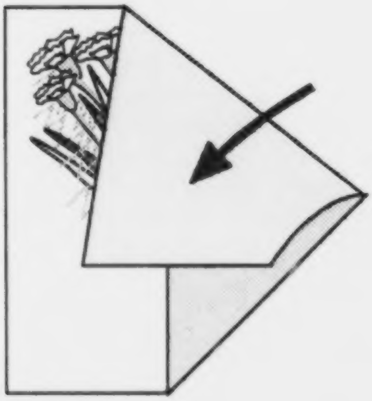

Figure 1.2

6. Roll the paper around the flowers (Figure 1.3).

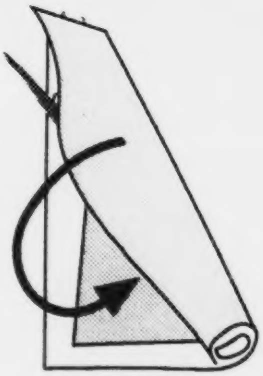
Figure 1.3

7. The paper is then cone-shaped and needs to be tightened around the lower end of the stems and flared out at the flower end.

8. Tie a ribbon around the wrap or staple the ends (Figure 1.4).

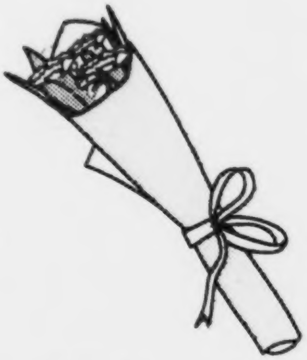
Figure 1.4

Evaluation Criteria:

Points:

_____ Sheet of florist paper is in proportion to the size of the flowers

_____ Foliage is placed on florist paper

_____ Flowers are arranged properly (heads are not piled on top of each other)

_____ Paper is folded neatly from bottom and sides

_____ Paper is rolled around the flowers

_____ Ribbon is tied around the wrapper or the ends are stapled

_____ Total Points

JS 5.2: Boxing Cut Flowers

Objective: Upon completion of this job sheet, students will be able to box cut flowers using the appropriate technique.

Materials and Equipment:

1. Flowers and foliage
2. Clear plastic box
3. Cardboard box
4. Florist paper
5. Foam or water picks, if appropriate
6. Ribbon
7. Scissors
8. Water mister
9. Appropriate care tag
10. Floral preservative
11. Enclosure card

Procedure: White Cardboard Box

1. Line the box with florist paper with paper extending out on either side.
2. Arrange a layer of foliage on the bottom of the box.
3. Arrange flowers on top of the foliage. If roses are used, a floral pack made of a piece of floral foam soaked in water and wrapped in foil may be secured to the bottom and the stems inserted into it. Water picks may also be used. Flowers should be placed in rows with as little overlap of heads as possible (Figure 2.1; shows water picks).
4. Mist the flowers and foliage lightly with water.
5. Place a care tag and a pack of floral preservative in the box.
6. Fold the paper over the flowers and foliage.
7. Add the lid to the box.
8. Secure the box with ribbon (Figure 2.2).
9. Add a bow secured with an enclosure card for delivery.

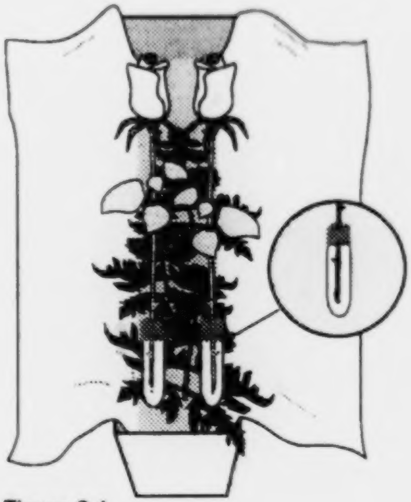

Figure 2.1

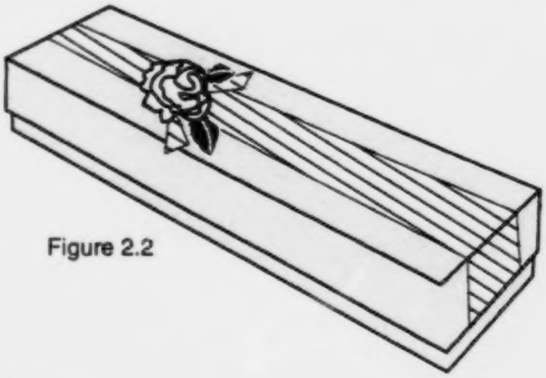

Figure 2.2

Procedure: Clear Plastic Box

1. Line the bottom of the box with foliage.
2. Layer the flowers.
3. Use foam or water picks if packaging delicate flowers such as roses.
4. Mist the flowers and foliage (Figure 2.3).

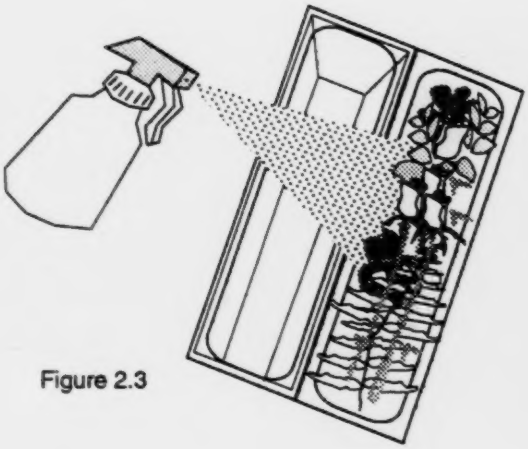

Figure 2.3

5. Snap the box shut.
6. Add a bow and enclosure card (Figure 2.4).

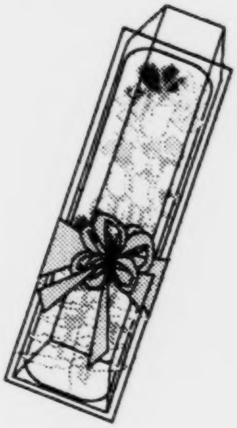

Figure 2.4

Evaluation Criteria:

Points:

_____ If a white cardboard box is used, it is lined with florist paper

_____ Box is lined with foliage

_____ Flowers are layered

_____ Water picks or foam is used if the flowers are perishable (ex. roses)

_____ Flowers and foliage are lightly misted

_____ Bow is attached

_____ Enclosure card is included

_____ Total Points

JS 5.3: Preparing Designed Arrangement for Transportation

Objective: Upon completion of this job sheet, students will be able to prepare a designed arrangement for transportation.

Materials and Equipment:

1. Designed arrangement
2. Florist green waxed tissue paper
3. Stapler

Procedure:

1. Set the arrangement in the center of a large piece of green waxed tissue paper.

2. Gather the four corners.

3. Staple at the top, avoiding any flowers or foliage.

Evaluation Criteria:

Points:

_____ Arrangement is centered on green waxed tissue paper

_____ Arrangement is covered neatly and completely, without damaging the flowers or foliage

_____ Total Points

JS 5.4: Dressing Potted Plants

Objective: Upon completion of this job sheet, students will be able to dress potted plants using the appropriate technique.

Materials and Equipment:

1. Potted plant
2. Foil
3. Ribbon
4. Scissors
5. Wooden pick

Procedure:

1. Select foil and ribbon to complement the plant.
2. Cut the foil to an appropriate size.
3. Place the plant on the foil with the best side toward you.
4. If folding down the top edges, do so now (Figure 4.1).

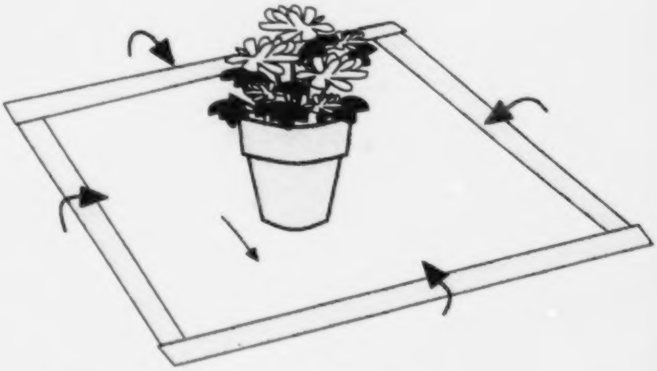

Figure 4.1

5. Make sure the front of the foil will cover the pot. (Figure 4.2)

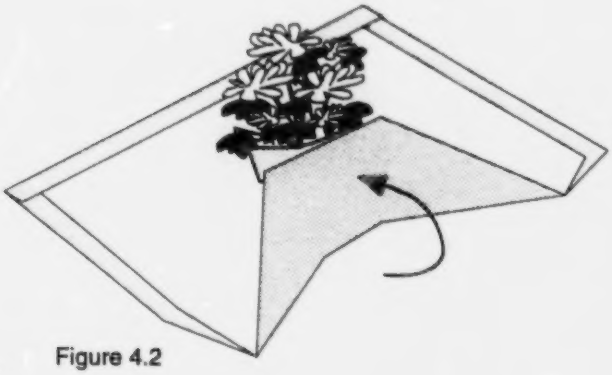

Figure 4.2

6. With your left hand, gently gather the foil as you work around the left side.

7. With your right hand, gently pull the corners upward as you work around the pot. (Figure 4.3)

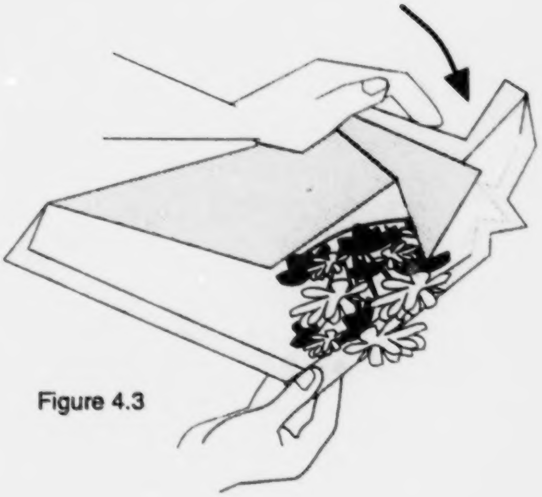

Figure 4.3

8. After all the foil is around the pot, bend the front two corners down to frame the front (Figure 4.4)

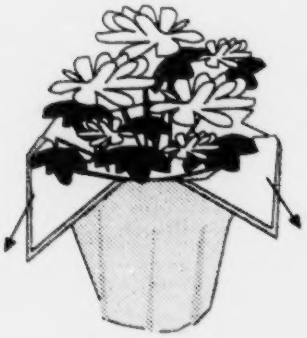

Figure 4.4

9. Make a bow with #40 or #9 ribbon.

10. Insert the bow with a wooden pick. (Figure 4.5)

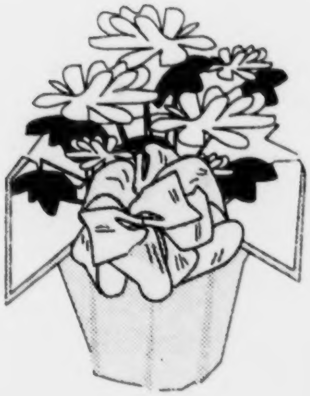

Figure 4.5

Evaluation Criteria:

Points:

_____ Foil complements plant, especially flower color

_____ Foil is the correct size

_____ Front of the foil covers the pot

_____ Foil is pulled up and around the pot

_____ Bow is inserted

    _____ Bow is a complementary color for the plant and the foil

    _____ Bow is made correctly

    _____ Bow is inserted in the appropriate place (the best side or "front" of the plant)

_____ Total Points

JS 5.5: Sleeving Potted Plants

Objective: Upon completion of this job sheet, students will be able to sleeve potted plants using the appropriate technique.

Materials and Equipment:

1. Potted plant
2. Plant sleeve
3. Sleeve stand
4. Stapler

Procedure:

1. Select a sleeve size to fit the plant.

2. Slip the plant in the sleeve. If using a sleeve stand, pull the sleeve up over the plant on the stand (Figures 5.1 and 5.2).

3. Fold the top over.

4. Staple the sleeve shut, avoiding stapling the plant material.

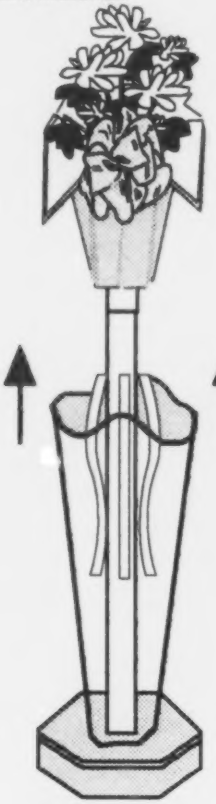

Figure 5.1

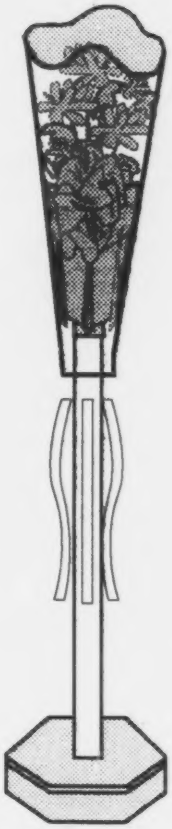

Figure 5.2

Evaluation Criteria:

Points:

_____ Sleeve fits the pot size and plant (plant is not injured by being sleeved)

  _____ Sleeved plant can be picked up by the sleeve

  _____ Plant is not dwarfed by too much sleeve

_____ Sleeve covers the entire plant with enough extra sleeve to fold over the top

_____ Top is folded over neatly and stapled shut

_____ No part of the plant has been caught in the fold

_____ Total Points

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 1: Identifying Basic Principles of Design

Objective: The student will be able to identify basic principles of floral arranging and elements of design.

Study Questions

1. **What are the principles of floral arranging?**
2. **What is focal point and how is it achieved?**
3. **Why is balance important in an arrangement?**
4. **How are scale and proportion achieved in a design?**
5. **What are the basic elements of design?**
6. **What six color harmonies are suitable for arrangements?**
7. **What are the rules of design?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit V.

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 1: Identifying Basic Principles of Design

TEACHING PROCEDURES

A. Introduction

The major work of a florist is designing and arranging flowers. These tasks require special talent. A designer needs to have knowledge of not only where the arrangement will be used, but also what an appropriate container would be and what flowers, foliage, and accessories to use. The most difficult part is being able to combine all of these materials into a pleasing arrangement. To be able to do this, it is important to know the principles of arranging and the elements of design.

B. Motivation

Place two flower arrangements before the class, one that is well designed and one that is poorly designed. Ask the students which one they prefer and why.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know any of the principles of floral arranging.

   What are the principles of floral arranging?

   a) Design
   b) Balance
   c) Scale and proportion
   d) Harmony
   e) Focal point
   f) Accent
   g) Rhythm
   h) Repetition
   i) Unity

2. Display an arrangement before the class. Ask where the focal point of the arrangement is. How did the designer achieve the focal point?

   What is focal point and how is it achieved?

   a) The focal point is the point of emphasis located toward the bottom and center of the arrangement.
   b) It is achieved by using larger or more brightly colored flowers.

3. Ask students why balance is an important element in an arrangement.

   Why is balance important in an arrangement?

   If an arrangement is unbalanced, it causes people to feel dissatisfied.

4. Ask students how a designer achieves scale and proportion in a design.

How are scale and proportion achieved in a design?

Scale and proportion are achieved by not using very large and very small flowers in the same arrangement or overly large flowers in very small containers.

5. Ask students to list the basic elements of design.

What are the basic elements of design?

a) Line
b) Form
c) Pattern
d) Texture
e) Color

6. Ask students what the six color harmonies suitable for arrangements are.

What six color harmonies are suitable for arrangements?

a) Monochromatic - various shades, tints, and tones of one color
b) Analogous - two or three colors near each other on the color wheel
c) Direct complementary - colors directly opposite each other on the color wheel
d) Split complementary - one color plus the two colors on either side of the complementary color
e) Triad harmonies - three colors equidistant from each other on the color wheel
f) Polychromatic - many colors

7. Ask students what the rules of design are.

What are the rules of design?

a) Arrangements should be 1½ to 2 times the height or length of the container.
b) Do not use more than four colors.
c) Do not use more than three kinds of flowers.
d) Keep large flowers toward the bottom and center of the arrangement, the small ones toward the top and edges.
e) Do not crowd flowers together.
f) Place dark colors toward the bottom of the arrangement.
g) If the flowers are all the same size, maintain a ratio of three light flowers for every dark one.
h) If using less than 12 flowers in an arrangement, use an odd number of them.
i) A flower or leaf should be used to interrupt the line of the container.

F. Other Activities

1. Construct a color wheel. Label all of the different color combinations.

2. Look at pictures of arrangements. Have students analyze what they like and do not like about them.

3. Give each student a picture of an arrangement and have them analyze the design in the form of a written report and/or an oral report to the class.

G. Conclusion

Designers need to know and be able to incorporate the principles of floral arranging in their work. In order to create effective designs, they must learn the various elements of design and the color harmonies. The beginning designer should follow the basic rules of design, but the more experienced designer may sometimes disregard them.

H. Competency

Identify basic principles of floral arranging and elements of design.

I. Answers to Evaluation

1. a
2. a
3. b
4. b
5. d
6. c
7. b
8. a
9. b

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Name ____________________

Lesson 1: Identifying Basic Principles of Design

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is a basic principle of floral arranging?

    a. Design
    b. Line
    c. Pattern
    d. Color

2. Which of the following is the underlying skeleton or linear pattern that holds an arrangement together?

    a. Line
    b. Form
    c. Scale
    d. Pattern

3. Monochromatic color harmony is produced by:

    a. Using the colors that are opposite each other on the color wheel.
    b. Using various shades, tints, and tones of one color.
    c. Using several colors which are near each other on the color wheel.
    d. Using many colors.

4. Which of the following is a basic element of design?

    a. Balance
    b. Color
    c. Unity
    d. Focal point

5. Why is balance important in an arrangement?

    a. Without balance, the arrangement will fall over.
    b. Without balance, the arrangement will not sell.
    c. An unbalanced arrangement uses colors on opposite sides of the color wheel.
    d. An unbalanced arrangement causes people to feel dissatisfied.

6. Where is the focal point of an arrangement usually located?

    a. Just above the center of the arrangement.
    b. Toward the right side and at the bottom.
    c. Toward the bottom and center of the arrangement.
    d. Toward the top and center of the arrangement.

7. To achieve scale and proportion in an arrangement, do NOT use which of the following?

   a. Very dark flowers
   b. Very large and very small flowers
   c. Flowers of complimentary colors
   d. Flowers in triad harmonies

8. What ratio should be maintained if flowers of the same size are used?

   a. Three light flowers to every dark flower
   b. Two light flowers to every dark flower
   c. One dark flower to every three light flowers
   d. One dark flower to every light flower

9. If a container is six inches tall, how tall should the arrangement be?

   a. Six to nine inches
   b. Nine to twelve inches
   c. Twelve to fifteen inches
   d. Fifteen to twenty inches

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Lesson 2: Identifying Design Shapes

Objective: The student will be able to identify design shapes.

Study Questions

1. **What are the basic straight-line arrangements?**
2. **What are the basic curved arrangements?**
3. **What are the different contemporary designs and techniques?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia, Instructional Materials Laboratory, 1996, Unit V.

Lesson 2: Identifying Design Shapes

TEACHING PROCEDURES

A. Review

Lesson 1 presented information about design principles and elements. This lesson will focus on design shapes. All floral designs begin with an idea of the general shape they will follow when completed. Many different design shapes exist, but some are more widely used than others. Newer, more contemporary design shapes are emerging in anticipation of the future of floral design.

B. Motivation

Have arrangements made in several of the design shapes. Ask the students what general shapes the arrangements have.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know the basic line arrangements using straight lines.

What are the basic straight-line arrangements?

a) Horizontal - low and flat with a long horizontal line; used for centerpieces
b) Vertical - oriented straight up and no wider than the container
c) Inverted-T - horizontal and vertical lines dominate
d) Symmetrical triangle - sides should be equal
e) Asymmetrical triangle - unequal sides and angles
f) Right angle - L-shaped arrangement

2. Ask students if they know the basic arrangements with curved lines.

What are the basic curved arrangements?

a) Hogarth - serpentine line
b) Circle - round and the same on all sides
c) Crescent - half-moon shaped; focal point is low and near the center
d) Oval - egg-shaped

3. Ask students if they know the names of any contemporary designs.

What are the different contemporary designs and techniques?

a) Traditional or classical
    1) Mille fleurs - naturalistic; incorporates many different flowers and colors
    2) Biedermeier - formal arrangement with flowers of the same type placed in rows in a conical shape
    3) Phoenix - mound of flowers with taller flowers or branches rising from the center

4) Waterfall - cascade of flowers down the side of the arrangement

b) Naturalistic

- 1) Botanical - one flower represented through five phases of life, which are stem, blossom, foliage, buds, and roots/bulbs
- 2) Vegetative - represents flowers in their natural setting
- 3) Landscape - includes elements that represent the natural landscape

c) Linear

- 1) Western - symmetrical or asymmetrical line arrangements with stems that appear to come from one central point
- 2) Parallel system - vertical design in which different types of plants are grouped together with the stems parallel to each other
- 3) New convention -vertical groupings of flowers and foliage are repeated lower in the design with flowers placed at right angles to them
- 4) Formal linear - uses flowers and foliage sparingly, emphasizing line and negative space

d) Modernistic or experimental

- 1) Sheltered - parts of the design are hidden from the first viewing
- 2) Pavé - groups of flowers in contrasting colors are placed closely together in a low, flat pattern
- 3) Pillowing - small tufts of flowers are scattered through the arrangement
- 4) New wave - uses plant materials that have been changed from their natural state in some way (braided, dyed, etc.) in designs that disregard rules of design
- 5) Abstract - non-realistic free-form designs

F. Other Activities

G. Conclusion

Designers must know the design shapes that they may use in creating floral arrangements, including straight-line, curved, and contemporary designs.

H. Competency

Identify design shapes.

I. Answers to Evaluation

1. a
2. c
3. d
4. b
5. a
6. b
7. b
8. b
9. a
10. b
11. a
12. a

UNIT V - BASIC PRINCIPLES OF FLORAL DESIGN

Name ____________________

Lesson 2: Identifying Design Shapes

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which statement is true of a symmetrical triangle arrangement?

   a. It must be equal on both sides.
   b. It has unequal angles.
   c. It is very informal.
   d. It uses a combination of horizontal and vertical lines.

2. Which classical arrangement is typified by being low and mounded with a spray of flowers or branches coming out the top?

   a. Sheltered
   b. Botanical
   c. Phoenix
   d. Mille fleurs

3. Which traditional design incorporates many different kinds and colors of flowers?

   a. Biederman
   b. Sheltered
   c. Phoenix
   d. Mille Fleurs

4. Which style of naturalistic arrangement represents the five stages in the life of the main flower?

   a. Phoenix
   b. Botanical
   c. High style
   d. Mille Fleurs

5. Which type of arrangement is frequently used for centerpieces?

   a. Horizontal
   b. Inverted-T
   c. Right angle
   d. Symmetrical triangle

6. Which arrangement shape is said to have a serpentine or "lazy S" line?

   a. Crescent
   b. Hogarth
   c. Landscape
   d. Waterfall

Match the arrangement with the appropriate shape.

7. ____Circle

8. ____Hogarth

9. ____Right angle

10. ____Oval

11. ____Horizontal

12. ____Vertical

a. Straight-line shape

b. Curved-line shape

UNIT VI - TYPES OF DESIGNS

Lesson 1: Uses of Floral Designs

Objective: The student will be able to identify how floral designs are used.

Study Questions

1. **Where are different types of floral designs displayed in the home?**
2. **What types of floral designs are used for weddings?**
3. **What types of floral designs are used for funerals?**
4. **How are flowers worn?**
5. **How do you customize designs for holidays and special occasions?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.

Unit VI - TYPES OF DESIGNS

Lesson 1: Uses of Floral Designs

TEACHING PROCEDURES

A. Introduction

Floral designs have many and varied uses. Occasions such as weddings and funerals require specialized designs, while flowers are also used in homes and businesses every day.

B. Motivation

Ask students to relate the last time they or someone in their family received flowers.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to list logical places to locate flower designs in their homes.

   Where are different types of floral designs displayed in the home?

   a) Dining room table - traditionally a centerpiece
   b) Coffee table - centerpiece
   c) Fireplace mantle - may use two asymmetrical triangles
   d) End table
   e) Night stand
   f) Vanity
   g) Bathroom vanity
   h) Foyer - tall, thin arrangements
   i) Piano
   j) Doors
   k) Walls

2. Ask students what floral designs are used in weddings.

   What types of floral designs are used for weddings?

   a) Bridal bouquet
   b) Attendant flowers
   c) Corsages and boutonnieres
   d) Ring bearer and flower girl flowers
   e) Ceremony designs
      1) Altar flowers
      2) Candelabra decorations
      3) Aisles
      4) Kneeling bench
      5) Canopy
      6) Virgin Mary statue
      7) Unity candle

        8) Guest book
        9) Aisle runner
    f) Reception
        1) Cake flowers
        2) Punch table
        3) Gift table
        4) Buffet or food table
        5) Individual tables

3. Ask students to list the types of floral designs used for funerals.

    What types of floral designs are used for funerals?

    a) Casket spray - full or half spray
    b) Casket garland
    c) Casket scarf
    d) Casket blanket
    e) Flowers inside the casket
    f) Standing sprays, or easel sprays
    g) Flat sprays
    h) Baskets
    i) Pedestal arrangements
    j) Set pieces - design constructed in special shapes
    k) Wreaths
    l) Flowering potted plants
    m) Dish gardens

4. Ask students to list ways that flowers are worn.

    How are flowers worn?

    a) Corsages
    b) Boutonnieres
    c) Leis
    d) Floral hair pieces
    e) Hat and veil floral pieces

5. Ask students how designs are made to represent holidays and special occasions.

    How do you customize designs for holidays and special occasions?

    a) Accessories such as picks, ribbons, and chenille in seasonal shapes may be added.
    b) Some flowers and foliage are identified with specific seasons. For example, holly is identified with Christmas and the Easter lily with Easter.

F. Other Activities

1. Have students look through magazines and list how many ways they see floral designs being used or flowers being worn.

2. Select a short movie. Have students watch it and then describe how they see floral designs being used in it.

3. Have students describe how they have seen flowers used.

G. Conclusion

Flowers are an important part of people's lives, not only during holidays and for special occasions such as weddings and funerals, but on other occasions as well. They can express many sentiments, such as joy, sorrow, and congratulations.

H. Competency

Identify how floral designs are used.

I. Answers to Evaluation

1. b
2. c
3. a
4. a. Adding seasonal picks, ribbons in appropriate holiday colors and designs, and chenille in seasonal shapes
   b. Using flowers or foliage associated with a particular season

UNIT VI - TYPES OF DESIGNS

Name ____________________

Lesson 1: Uses of Floral Designs

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which design is best to use on a coffee table?

   a. Right angle arrangement
   b. Centerpiece
   c. Wreath
   d. One-sided arrangement

2. What is a set piece?

   a. A standard bridal bouquet or attendant bouquet
   b. A design for a kneeling bench or casket scarf
   c. A funeral floral design constructed in a special shape or in the emblem of an organization
   d. A Christmas design that is displayed on a metal or wooden easel

3. Where can flowers be placed during a wedding ceremony in a church?

   a. Aisles, altar, unity candle, and guest book
   b. Altar, entryway, gift table, and unity candle
   c. Candelabra, gift table, standing sprays, and set pieces
   d. Set pieces, aisle runners, guest book, and candelabra

4. List two ways that designs can be customized for holidays or special occasions.

   a. ____
   ____

   b. ____
   ____

UNIT VI - TYPES OF DESIGNS

Lesson 2: Corsages and Boutonnieres

Objective: The student will be able to construct flowers to wear.

Study Questions

1. **How is a corsage worn?**
2. **What are the basic parts of a corsage?**
3. **How are corsages constructed?**
4. **How is a boutonniere different from a corsage?**
5. **How is a corsage packaged?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    a) JS 2.1: Constructing Corsages

UNIT VI - TYPES OF DESIGNS

Lesson 2: Corsages and Boutonnieres

TEACHING PROCEDURES

A. Review

Lesson 1 presented information on how flowers are used. This lesson will provide greater detail about flowers that are worn. Today, flowers usually are worn for special occasions such as weddings. The flowers that women wear are referred to as corsages, and the flowers that men wear are called boutonnieres.

B. Motivation

Show students a plain un-wired flower. Pin it on yourself or one of the students. Ask if they think it looks attractive or is very easy to wear. Have a corsage made up and pin that on someone or yourself. Ask what the difference is between the two.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students to list all the ways a corsage may be worn.

   How is a corsage worn?

   a) Left shoulder
      1) Curved slightly over the shoulder
      2) Usually worn upright
   b) Wrist
   c) Hair
   d) Waist
   e) Neck
   f) Ankle
   g) Carried
   h) Pinned to a purse

2. Ask students if they know what the basic parts of a corsage are.

   What are the basic parts of a corsage?

   a) Flowers
   b) Foliage
   c) Filler
   d) Wire
   e) Tape
   f) Bow

3. Ask students how to construct a corsage.

How are corsages constructed?

- a) To construct a single-flower corsage:
    - 1) Prepare a flower by wiring and taping.
    - 2) Add filler to the back of the flower.
    - 3) Add foliage to the back of the filler.
    - 4) Tape all three together.
    - 5) Add a bow that has been tied off with wire, twisting this wire around the flower's wire.
    - 6) Cut off the excess wire, leaving 1½" to 2" of wire. Make sure the wires are taped.
    - 7) Shape the wire into the desired shape.
    - 8) Put a corsage pin in the corsage at an angle so that the pointed end is not exposed.
    - 9) Place the corsage in a bag or box.
- b) To construct a two-flower corsage:

NOTE: Carnations or cymbidium orchids are usually used, so this is a larger corsage.

-
    - 1) Make two one-flower corsages, but leave the smaller of the two flowers with a longer, stronger stem.
    - 2) Place the smaller flower just above the other flower.
    - 3) Wrap and tape.
    - 4) Add a bow.
    - 5) Trim the stem to about 2". Shape the stem.
    - 6) Always include at least two corsage pins with this larger corsage.
    - 7) Place the corsage in a bag or box.
- c) To construct a three-flower corsage:
    - 1) Wire and tape three flowers in graduating sizes.
    - 2) Place the bud the highest, the second largest flower right under it, and the largest flower slightly under this one.
    - 3) Tape filler behind each.
    - 4) Add foliage behind fillers.
    - 5) Tape all three together.
    - 6) Add a bow under the three flowers.
    - 7) Trim the stem to about 2". Shape the stem.
    - 8) Always include at least two corsage pins with this larger corsage.
    - 9) Place the corsage in a bag or box.
- d) To construct a five-flower corsage:
    - 1) Make a three-flower corsage and a two-flower corsage
    - 2) Place the corsages together at the stem ends. Bend the stem of the two-flower corsage so that it will lay flat against the stem of the three-flower corsage. Wrap all the stems together, being sure not to leave too large a space between the two groups of flowers.
    - 3) Tie the bow with ribbon in between the two groups, eliminating the necessity of taping again.
    - 4) Trim the stem to about 2". Shape the stem.
    - 5) Always include at least two corsage pins with this larger corsage.
    - 6) Place the corsage in a bag or box.

4. Ask students what the differences are between a boutonniere and a corsage.

How is a boutonniere different from a corsage?

- a) Boutonniere

    1) Boutonnieres are worn by men on their lapels, usually close to the buttonhole. Roses or carnations are commonly used in single-flower boutonnieres.
    2) Boutonnieres are smaller than corsages.
    3) Pins used to hold boutonnieres have smaller heads and are shorter than corsage pins
    4) Boutonnieres are generally composed of only one flower or a composite of several small ones.
  b) Corsage
    1) Corsages are worn by women, usually on the left shoulder.
    2) They are usually larger than boutonnieres, with more flowers and a bow.

5. Ask students how to package a corsage.

How is a corsage packaged?

  a) Cellophane (plastic) bag
    1) Lightly mist the inside of the bag.
    2) Place the flower so the seam of the bag is on the bottom.
    3) Neatly fold the bag closed.
    4) Insert a corsage pin to hold the bag closed or staple the bag.
  b) Clear plastic box or cardboard box
    1) Line the box with Easter grass or green waxed paper.
    2) Close the lid securely.

F. Other Activities

G. Conclusion

Corsages and boutonnieres are often sold for special occasions. Florists must therefore be able to construct them both, as well as corsages consisting of different numbers of flowers. The proper packaging is also important to ensure that corsages and boutonnieres are in good condition for the customer.

H. Competency

Construct flowers to wear.

I. Answers to Evaluation

1. b
2. b
3. d
4. a
5. c

UNIT VI - TYPES OF DESIGNS   Name ____________________

Lesson 2: Corsages and Boutonnieres   Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. The longer pin with the larger head is used to:

   a. Pin on a boutonniere.
   b. Pin on a corsage.
   c. Pin on boutonnieres and corsages.
   d. Close the corsage bag.

2. Which of the following is a difference between a corsage and a boutonniere?

   a. A corsage is worn by a woman or man.
   b. A corsage has a bow.
   c. A boutonniere has larger flowers.
   d. A boutonniere can be worn on the wrist.

3. Corsages can be packed in which of the following?

   a. Clear plastic boxes
   b. Cellophane bags
   c. Cardboard boxes
   d. All of the above

4. Where is a corsage usually worn?

   a. Left shoulder
   b. Right shoulder
   c. Left lapel
   d. Right lapel

5. Which of the following would NOT be good to use in a boutonniere?

   a. Flowers, filler, and tape
   b. Flowers, foliage, and wire
   c. Flowers, filler, and bow
   d. Flowers, foliage, and filler

JS 2.1: Constructing Corsages

Objective: Upon completion of this job sheet, students will be able to construct corsages.

Materials and Supplies Needed:

1. Flowers
2. Filler
3. Foliage
4. Wire
5. Ribbon
6. Florist tape
7. Ribbon scissors
8. Wire cutters
9. Floral knife

Procedure:

Single-flower corsage:

1. Prepare the flower by wiring and taping.

2. Add filler to the back of the flower.

3. Add foliage to the back of the filler.

4. Tape all three together (Figure 1.1). Remember to turn the flower with one hand while pulling the tape at a downward angle with the other hand.

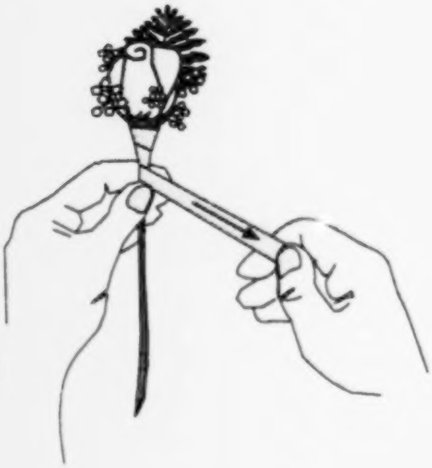

Figure 1.1

5. Add a bow that has been tied off with wire. Twist this wire around the wire of the flower.

6. Cut off excess wire, leaving 1½" to 2" of wire. Make sure the wires are taped.

7. Shape wire into the desired shape.

8. Put a corsage pin in the corsage at an angle so that the pointed end is not exposed.

9. Place the corsage in a bag or box.

Two-flower corsage:

NOTE: Usually carnations or cymbidium orchids are used making this a larger corsage.

1. Make two one-flower corsages, but leave the smaller of the two flowers with a longer, stronger stem.
2. Place the smaller flower just above the other flower.
3. Wrap and tape (Figure 1.2).

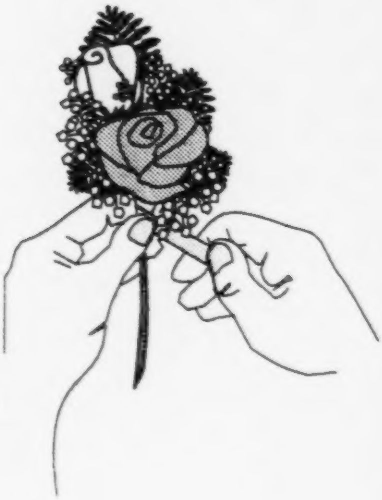

Figure 1.2

4. Add a bow (Figure 1.3).

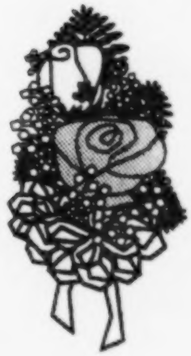

Figure 1.3

5. Always include at least two corsage pins with this larger corsage.
6. Place the corsage in a bag or box.

Three-flower corsage:

1. Wire and tape three flowers in graduating sizes.
2. Place the bud the highest, the second largest flower right under it, and the largest flower slightly under this one.

3. Tape filler behind each.

4. Add foliage behind filler.

5. Tape all three together (Figure 1.4).

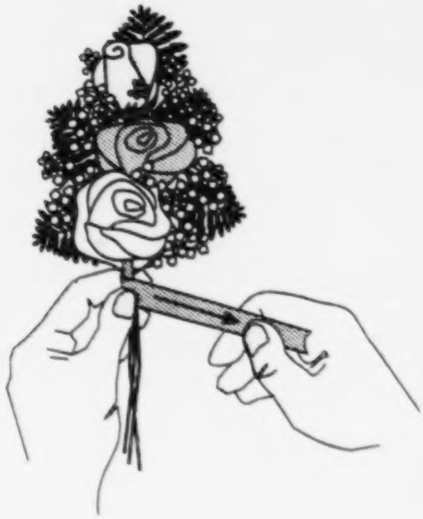

Figure 1.4

6. Add a bow under the three flowers (Figure 1.5).

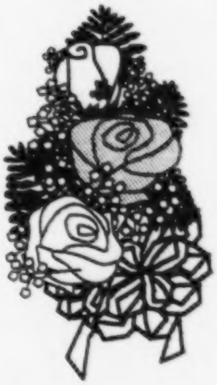

Figure 1.5

7. Trim the stem to about 2". Shape the stem.

8. Always include at least two corsage pins with this larger corsage.

9. Put the corsage in a bag or box.

Five-flower corsage:

1. Make a three-flower corsage and a two-flower corsage.

2. Place the corsages together at the stem ends. Bend the stem of the two-flower corsage so that it will lay flat against the stem of the three-flower corsage. Wrap all the stems together, being sure not to leave too large a space between the two groups of flowers (Figure 1.6).

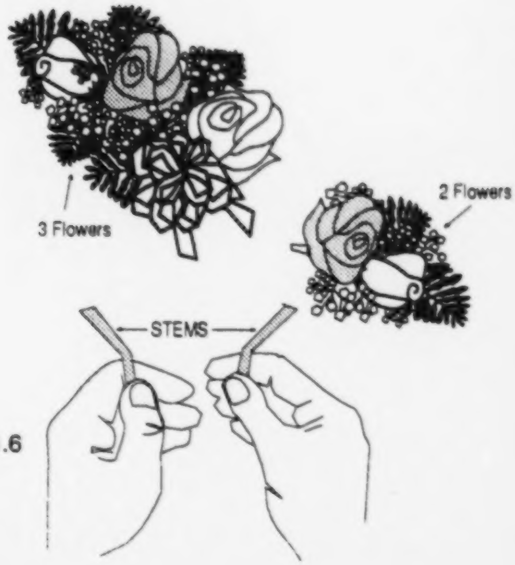

Figure 1.6

3. Tie the bow with ribbon in between the two groups, eliminating the necessity of taping again.

4. Trim the stem to about 2". Shape the stem (Figure 1.7).

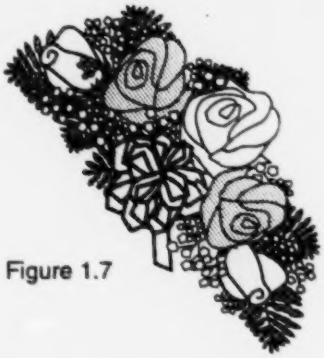

Figure 1.7

5. Always include at least two corsage pins with this larger corsage.

6. Put the corsage in a bag or box.

Evaluation Criteria:

Points:

_____ Flowers are wired correctly

_____ Tape is pulled tight

_____ Flowers are taped halfway up the calyx

_____ Corsage is finished off with all wires covered by tape

_____ Ribbon is made correctly

_____ Ribbon is the right size for the corsage

_____ Foliage, filler, and accessories are in proportion to the size of the flowers

_____ Pin is placed in corsage correctly

_____ Corsage is bagged or boxed

_____ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 3: Bud Vases

Objective: The student will be able to construct a bud vase.

Study Questions

1. **How is a bud vase constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    - a) JS 3.1: Constructing a Bud Vase

UNIT VI - TYPES OF DESIGNS

Lesson 3: Bud Vases

TEACHING PROCEDURES

A. Review

Lesson 2 presented information on how to construct corsages. In this lesson, students will learn techniques used in constructing a bud vase. A bud vase is one of the major types of arrangements that florists produce. Bud vases are usually inexpensive and easy for customers to carry home. They are often given as gifts and used in hospital rooms, on offices desks, etc.

B. Motivation

Construct two bud vases, one with the flowers just stuck in and the other arranged. Show them to the students and ask which one they prefer.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how to make a bud vase.

   How is a bud vase constructed?

   a) Select a vase.
   b) Fill the vase with water containing a preservative.
   c) Place the major flowers to outline the basic shape of the arrangement.
   d) Add foliage.
   e) Add the filler flower.
   f) Add a bow.

F. Other Activities

1. Ask a florist to visit and demonstrate some of the novelty bud vases (ex. chrysanthemum kitten).

2. Have students construct a bud vase for a specific holiday.

G. Conclusion

Since bud vases are frequently purchased by customers, florists need to know how to construct them in order to produce these very popular arrangements both quickly and efficiently.

H. Competency

Construct a bud vase.

JS 3.1: Constructing a Bud Vase

Objective: Upon completion of this job sheet, the student will be able to construct a bud vase arrangement.

Materials and Equipment:

1. Bud vase
2. Water containing preservative
3. Flowers
4. Filler
5. Foliage
6. Ribbon
7. Ribbon scissors

Procedure:

1. Select a container. Make sure it is clean.

2. Fill it with water to which a preservative has been added.

3. Place the major flowers to establish the basic height. The height is generally 1½ to 2 times the height of the container (so the tallest flower in a standard eight-inch bud vase would be 16 inches tall). If using more than one flower, vary the height of the flowers so that they are evenly spaced out with the tallest. If using flowers of varying sizes, the largest should be placed at the bottom of the arrangement (Figure 1.1).

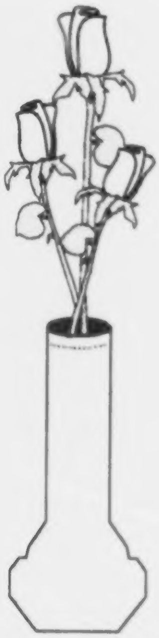

Figure 1.1

4. Add foliage, usually about three stems of leatherleaf. Other foliage can also be used with the leatherleaf or substituted for it. Use enough foliage stems to hold the flowers in place (Figure 1.2).

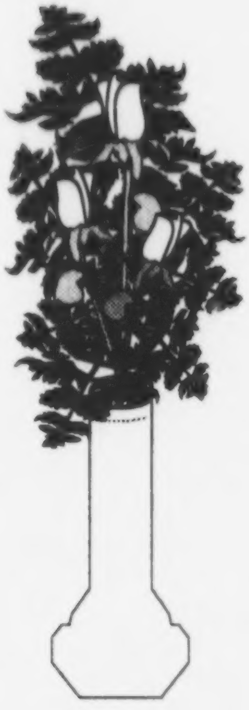

Figure 1.2

5. Add filler flowers if desired. Baby's breath is frequently used, but statice, latifolium, Queen Ann's lace, and other fillers also work well.

6. A bow may be added slightly above the edge of the base for an accent. A #3 ribbon is usually used. Wire it onto a wooden pick, a flower, or a foliage stem (Figure 1.3).

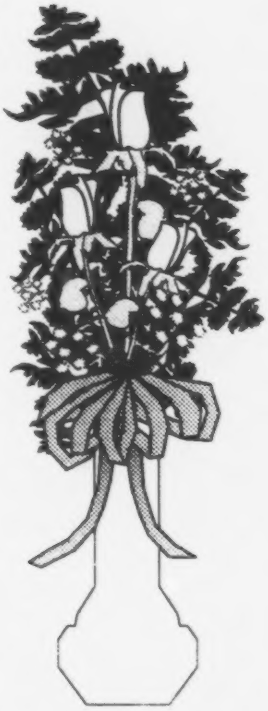

Figure 1.3

Evaluation Criteria:

Points

______ Bud vase is clean

______ Water with a preservative has been added

______ Top flower is 1½ to 2 times the height of the container

______ Flowers are evenly spaced out

______ If different sized flowers are used, the smallest is the tallest and the largest is lowest

______ Foliage frames the flowers and holds the flowers in place

______ If filler is used, it does not overpower or dominate the bud vase

______ If a bow is used, it is well constructed and complements flower color

______ Bow is slightly above the lip of the vase

Lesson 4: One-sided Arrangements

Objective: The student will be able to construct a one-sided arrangement.

Study Questions

1. **How is a one-sided arrangement constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    - a) JS 4.1: Constructing a One-sided Arrangement

Lesson 4: One-sided Arrangements

TEACHING PROCEDURES

A. Review

The last lesson described how a bud vase is constructed. This lesson will focus on the one-sided arrangement, which is used in places where it will not be viewed from all sides.

B. Motivation

Place a full arrangement where a one-sided arrangement should be placed. Ask students if they are dissatisfied with its placement.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how to construct a one-sided arrangement.

   How is a one-sided arrangement constructed?

   a) Choose the line or shape of the arrangement.
   b) Select flowers, filler, and foliage.
   c) Select a container.
   d) Prepare the floral foam.
   e) Establish the lines of the arrangement.
   f) Fill in the lines.
   g) Add the foliage and filler.
   h) Finish off the back.
   i) Refill the container with water and a preservative.

F. Other Activities

1. Have students draw designs of some one-sided arrangements and show the line movement of each design.

2. Have students collect pictures of one-sided arrangements and show the line movement of the designs.

G. Conclusion

Designers should be able to construct an attractive one-sided arrangement. Following the steps given above will allow them to do so efficiently.

H. Competency

Construct a one-sided arrangement.

JS 4.1: Constructing a One-sided Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a one-sided arrangement.

Materials and Equipment:

1. Container
2. Floral foam
3. Flowers, filler, and foliage
4. Waterproof tape, if needed
5. Wire, if needed
6. Floral shears or knife
7. Wire cutters, if needed

Procedure:

1. Choose the line or shape of the arrangement.

2. Select the flowers and foliage.

3. Select a container.

4. Prepare the floral foam and add water and preservative.

5. Establish the lines of the arrangement (Figure 1.1).

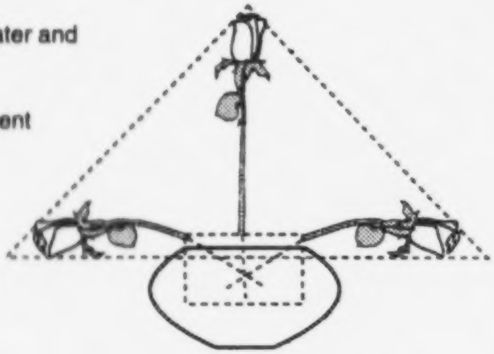

Figure 1.1

6. Fill in the lines (Figure 1.2).

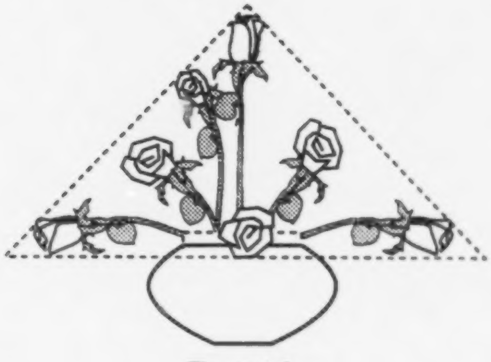

Figure 1.2

7. Add the foliage and filler (Figure 1.3).

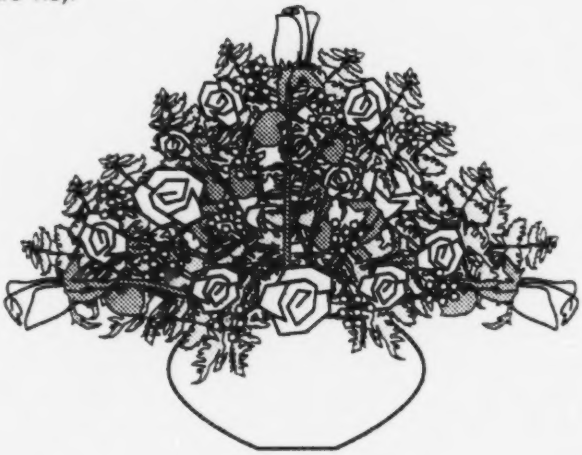

Figure 1.3

8. Finish off the back.

9. Refill the container with water mixed with a preservative.

Evaluation Criteria:

NOTE: Several steps may need to be checked off before the student can proceed to the next step.

Points:

______ Container is clean

______ Foam is soaked properly (allowed to soak up water without being pushed under the water)

______ Foam is secured in the container

______ Line is established

______ Form of the arrangement is filled in

______ Filler is added

    ______ Filler does not dominate

    ______ Filler is added evenly

______ Foliage is added

    ______ Foliage complements the arrangement

    ______ Foliage covers the foam

______ Design is balanced

______ Back of the arrangement is finished

______ Container is filled with water

______ Preservative is used

______ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 5: Centerpieces

Objective: The student will be able to construct a centerpiece.

Study Questions

1. **How is a centerpiece constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    - a) JS 5.1: Constructing a Centerpiece

UNIT VI - TYPES OF DESIGNS

Lesson 5: Centerpieces

TEACHING PROCEDURES

A. Review

The last lesson described the process of designing a single-sided arrangement. Many of the same steps will be used to construct a centerpiece.

B. Motivation

Have students sit around a table. Place a large, tall arrangement in the center. Ask if they think this arrangement would be a good centerpiece.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students how a centerpiece is constructed.

   How is a centerpiece constructed?

   a) Choose the line or shape of the arrangement.
   b) Select flowers, filler, and foliage.
   c) Select a container; it is generally a low, flat container.
   d) Prepare the floral foam.
   e) Establish the lines of the arrangement.
      1) A centerpiece to be used on a dining room table should be low enough to see over when seated. The center flower is usually no taller than 12 to 14 inches.
      2) All stems should appear to emerge from the same central point.
      3) Insert a flower on each end to establish length. Length is determined by the length of the table; it is usually one-third the length of the table.
      4) Insert two flowers on the other two sides to establish width.
      5) Insert four more flowers diagonally in each of the corners. The flowers should be longer than those that establish width, but shorter than those used to establish height and length.
   f) Fill in the lines.
   g) Add the foliage and filler. Some designers add the foliage before inserting the flowers.
   h) Refill the container with water mixed with a preservative.

F. Other Activities

1. Collect pictures of centerpieces. Arrange them by occasion or holiday.

2. Have the class construct centerpieces for a school banquet, possibly the FFA Parent-Member Banquet.

G. Conclusion

Designers should be able to construct centerpieces that are attractive from any angle, since they will be viewed from all sides. To create centerpieces efficiently, follow the steps above.

H. Competency

Construct a centerpiece.

I. Answers to Evaluation

1. c
2. a
3. d
4. a

UNIT VI - TYPES OF DESIGNS

Name ____________________

Lesson 5: Centerpieces

Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. The center flower in a centerpiece is usually no taller than:

   a. 6" to 8".
   b. 8" to 10".
   c. 12" to 14".
   d. 16" to 18".

2. What is the first step in constructing a centerpiece?

   a. Choosing the line or shape of the arrangement
   b. Establishing the lines of the arrangement
   c. Selecting the flowers, foliage, and filler
   d. Selecting the container

3. The length of the arrangement is in proportion to what?

   a. The height of the arrangement
   b. The cost of the arrangement
   c. The width of the table
   d. The length of the table

4. If the foliage is not added after the lines are filled in, when is it most likely added?

   a. Before the flowers
   b. After the filler
   c. When each flower is added
   d. When the foam is prepared

JS 5.1: Constructing a Centerpiece

Objective: Upon completion of this job sheet, the student will be able to construct a centerpiece.

Materials and Equipment:

1. Container
2. Floral foam
3. Flowers, filler, and foliage
4. Waterproof tape, if needed
5. Wire, if needed
6. Floral shears or knife
7. Wire cutters, if needed

Procedure:

1. Choose the line or shape of the arrangement.
2. Select flowers, filler, and foliage.
3. Select a container.
4. Prepare the floral foam.
5. Add water mixed with preservative to the container.
6. Establish the lines.
    a. Insert the main or center flower to establish the height.
    b. Insert two flowers at the furthest lengths (Figure 1.1).

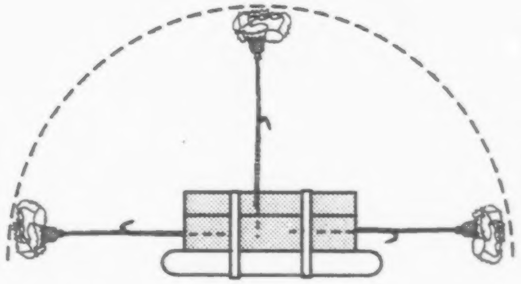

Figure 1.1

    c. Insert two flowers on the other two sides to establish width.
    d. Join the lower flowers to the center flower by inserting four more flowers diagonally in each of the opposite corners. Make them shorter than the vertical and horizontal flowers (Figure 1.2).

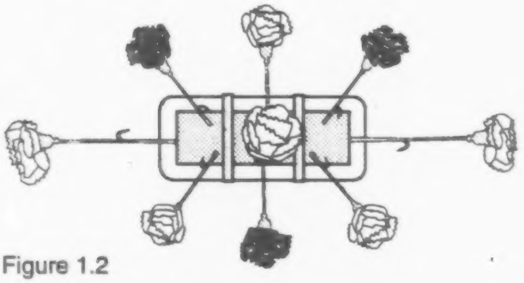

Figure 1.2

7. Fill in the lines (Figure 1.3).

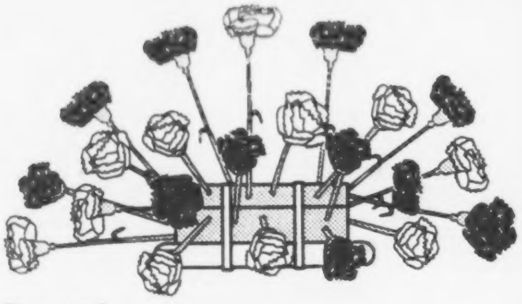

Figure 1.3

8. Add the foliage and filler (Figure 1.4).

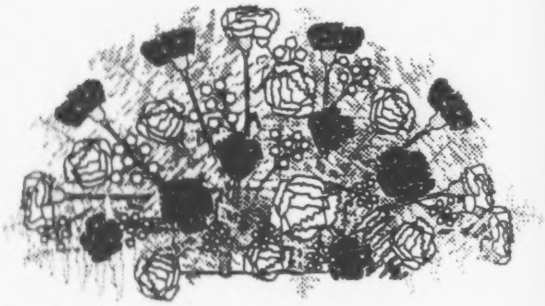

Figure 1.4

9. Refill the container with water and a preservative.

Evaluation Criteria:

NOTE: Several steps may need to be checked off before the student can proceed to the next step.

Points:

- ______ Container is clean
- ______ Foam is soaked properly by floating
- ______ Foam is secured in the container
- ______ Line is established
- ______ Form of the arrangement is filled in
- ______ Filler is added
  - ______ Filler does not dominate
  - ______ Filler is added evenly
- ______ Foliage is added
  - ______ Foliage complements the arrangement
  - ______ Foliage covers the foam
- ______ Design is balanced
- ______ Container is filled with water
- ______ Preservative is used
- ______ Arrangement can be seen over when the viewer is seated at a table
- ______ Arrangement is in scale with the table it is to decorate
- ______ View of the arrangement is attractive from all sides

______ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 6: Wreaths

Objective: The student will be able to identify the uses of wreaths and construct a wreath using evergreens.

Study Questions

1. **What types of base materials can be used to construct a fresh green wreath?**
2. **What tips or pointers make constructing and decorating a wreath easier?**
3. **How is a wreath using evergreens in a Styrofoam™ or straw wreath base constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
   - a) JS 6.1: Constructing a Wreath Using Evergreens in a Styrofoam™ or Straw Wreath Base

UNIT VI - TYPES OF DESIGNS

Lesson 6: Wreaths

TEACHING PROCEDURES

A. Review

Lesson 5 provided information on how to construct a centerpiece. This lesson will focus on constructing wreaths.

B. Motivation

Display a finished evergreen wreath. Ask students where such a design might be displayed.

C. Assignment

D. Supervised Study

E. Discussion

NOTE: Fresh greens should not be stored in a flower cooler with fresh flowers. Greens emit ethylene gas, which causes fresh flowers to age and die. If a separate cooler is not available, store greens in a cool room. Wholesalers sell evergreens several ways. Branches that are 20 to 30 inches long are called boughs. Tips are shorter end pieces.

NOTE: Use floor wax diluted with water and Crowning Glory® as a seal when working with evergreens.

1. Ask students what types of base materials can be used to make an evergreen wreath.

   What types of base materials can be used to construct a fresh green wreath?

   a) Purchasing an undecorated green wreath and decorating it
   b) Picking greens onto a Styrofoam™ or straw wreath frame
   c) Wiring pieces of greens onto a wire frame
   d) Using a hillman wreath frame and bending the prongs around the greens
   e) Using a grapevine wreath and filling it in with fresh greens

2. Ask students if they have tried to decorate a wreath. Discuss the tips for making wreaths and pointers for decorating wreaths.

   What tips or pointers make constructing and decorating a wreath easier?

   a) Tips for making wreaths:
      1) It is best to start the greens at one point and from there work in one direction. If using a crescent accent, begin the design in the center and work outward in each direction.
      2) Set the wreath up or secure it to an easel when working on it to give a better perspective on the wreath.
      3) If using silks or other artificial materials, dip the stems into glue before sticking them into the wreath frame.

b) Pointers for decorating wreaths:
  1) The focal point is usually the bow. Gather the major decorations around it.
  2) If using a large decoration, such as a stuffed animal, place it at the bow and secure it firmly.
  3) If using other smaller decorations, it is better to keep them together than to scatter them.
  4) To attract further interest, try looping the ribbon around the wreath.

3. Ask students what the technique for constructing a wreath is.

How is a wreath using evergreens in a Styrofoam™ or straw wreath base constructed?

a) Cut the evergreens into six to eight inch lengths.
b) Gather several pieces together (usually three).
c) Anchor them into the wreath frame using greening pins.
d) Continue until the wreath frame is covered, being sure to the overlap the greens to hide the pins and the wreath frame.
e) Cut off sprigs if they stick out or are too long.
f) Make a bow using #40 ribbon.
g) Tie off the ribbon with heavy wire (about #18).
h) Wire the ribbon into the wreath with the wire coming out the back so that it can be twisted into a hook for hanging. If the ribbon is off center, use another piece of wire for the hook.
i) Wire or glue decorations onto the wreath. If the decorations are heavy, be sure to wire them on. Lighter decorations can be glued.

F. Other Activities

1. Construct wreaths using fresh greens on a grapevine wreath.

2. Visit a local florist and/or wholesaler to see what holiday materials they have and how they are used.

3. Have students learn and identify some of the more popular evergreens used for the holidays.

G. Conclusion

Wreaths are popular decorations purchased throughout the year, although they are especially in demand at Christmas. In order to meet this demand, the florist needs to know what materials can be used for making wreaths as well as how to construct and decorate them.

H. Competency

Construct an evergreen wreath.

I. Answers to Evaluation

1. d
2. b
3. d
4. a
5. c
6. b

UNIT VI - TYPES OF DESIGNS

Name ____________________

Lesson 6: Wreaths

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following are good bases for an evergreen wreath?

   a. Hillman wreath and plastic wreath
   b. Cloth wreath and hillman wreath
   c. Straw wreath and cloth wreath
   d. Straw wreath and grapevine wreath

2. To what length should the evergreen pieces be cut before they are inserted into the base wreath?

   a. Four to six inches
   b. Six to eight inches
   c. Eight to ten inches
   d. Ten to twelve inches

3. Which one of the following is not a base material used to construct a wreath?

   a. Hillman wreath frame
   b. Grapevine wreath frame
   c. Straw wreath frame
   d. Floral foam wreath frame

4. Why is it important to overlap the greens once they are inserted into the base wreath?

   a. Overlapping covers up the greening pins.
   b. Overlapping makes a bushier wreath.
   c. Overlapping prevents the greens from falling out.
   d. Overlapping is not necessary.

5. Where should major decorations be placed on the wreath?

   a. Place them on the inside of the wreath.
   b. Place them around the entire wreath.
   c. Place them around the bow.
   d. Place them opposite the bow.

6. To give proper perspective, where should the wreath be placed during construction?

   a. On the wall or door
   b. On an easel or standing on edge
   c. On the work table or door
   d. In the cooler

JS 6.1: Constructing a Wreath Using Evergreens in a Styrofoam™ or Straw Wreath Base

Objective: Upon completion of this job sheet, the student will be able to construct a wreath using evergreens in a Styrofoam™ or straw wreath base.

Materials and Equipment:

1. Styrofoam™ or straw wreath frame
2. Evergreens
3. Greening pins (#20 gauge wire cut into two-inch pieces and bent in a hairpin shape can be used instead)
4. Ribbon (#40)
5. Various decorations for the wreath
6. Floral knife or shears
7. Ribbon scissors

Procedure:

1. Cut the evergreens into six to eight inch lengths.

2. Gather several pieces together (usually three).

3. Anchor the pieces firmly into the wreath frame with the greening pins (Figure 1.1).

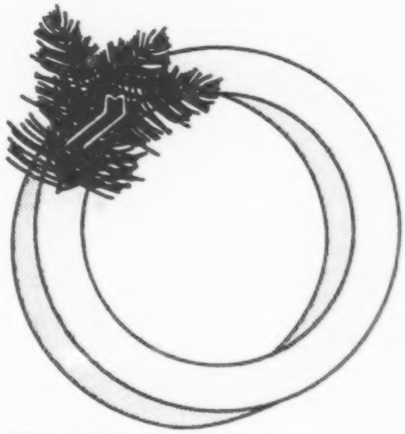

Figure 1.1

4. Continue until the wreath frame is covered, being sure to overlap the greens. Pin each successive bunch of greens so that they cover the pin from the previous bunch. Moving in one direction, continue around the frame until you have covered the entire wreath frame. No holes or gaps should be visible.

5. If some sprigs are too long and stick out, trim them after the wreath is completed.

6. Make a bow using #40 ribbon.

7. Tie off the ribbon with heavy wire (about #18).

8. Wire the ribbon into the wreath with the wire coming out the back so that it can be twisted into a hook for hanging (Figure 1.2). If the ribbon is to be off center, then use another piece of wire for the hook.

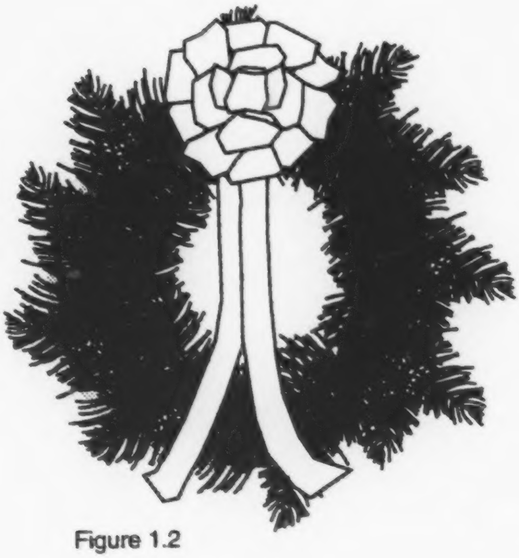

Figure 1.2

9. Wire or glue decorations onto the wreath.

Evaluation Criteria:

Points:

_______ Greens are firmly attached to base

_______ Base or wreath frame is completely covered

_______ Mechanics of attaching greens are not visible

_______ Sprigs are trimmed if necessary

_______ Bow is an appropriate size for the wreath

_______ Bow is attached firmly

_______ Decorations are attached firmly

_______ Decorations complement the design rather than detract from it

_______ Wreath has a focal point

_______ Hanger added to the back of the wreath

_______ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 7: Silk Arrangements

Objective: The student will be able to construct a silk arrangement.

Study Questions

1. **What are the differences in using silk and fresh flowers?**
2. **What arranging tips make constructing silk arrangements easier and better?**
3. **How is a silk arrangement constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
   a) JS 7.1: Constructing a Silk Arrangement

UNIT VI - TYPES OF DESIGNS

Lesson 7: Silk Arrangements

TEACHING PROCEDURES

A. Review

Many of the techniques used for constructing arrangements that were discussed in earlier lessons are used in constructing silk arrangements.

B. Motivation

Show the students a finished silk arrangement. Ask how it differs from a fresh arrangement.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what differs when constructing a silk arrangement and a fresh arrangement.

What are some of the differences in using silk and fresh flowers?

Silk arrangements are constructed in much the same way as fresh arrangements except for a few basic differences.

a) Silk flowers must be prepared or bent into shape.
b) Silk flowers are available in a wider variety of colors. Some silk flowers do not have a counterpart in nature.
c) Silk flowers are available all year.
d) The stems of silk flowers can be lengthened by wiring if they are too short.
e) The stems of silk flowers are made of wire, so they can be bent into different shapes.
f) A wire cutter should be used to cut the stems of silk flowers.

NOTE: There are two different kinds of silk flowers.

1) Molded, plastic-stemmed flowers - The flowers are made from polyester with petals heat molded in a die. The stems are wires that have been covered with plastic. This type of flower usually does not cost as much as hand-wrapped silk. They are usually sold by the dozen.

2) Hand-wrapped flowers - The petals are cut at a slant and then wired to a wire stem that has been hand-wrapped with floral tape. Because they are more labor intensive, they cost more. They are generally sold individually.

2. Ask students if they have made silk arrangements before and whether they had trouble when constructing them. Point out that the following tips make construction easier and better.

What arranging tips make constructing silk arrangements easier and better?

a) The construction of the arrangement needs to be very good since the design will be created to last a long time.
b) Stems should be glued into place while constructing the arrangement.
c) Cover the foam with sheet moss or Spanish moss.
d) If sheet moss is used, wet it, and it will conform to the side of the dry floral foam.
e) Do NOT glue sheet moss to the foam because doing so will make it difficult or even impossible to stick the stems through the glue.
f) Multiple-stem silk flowers usually include flowers at all stages of development. Cut these into pieces.
g) Silk bushes can be economical because they have a lot of foliage as well as flowers. Silk bushes should also be cut apart.
h) Save any unused greenery and stems for future arrangements.
i) If a stem is not stiff enough to pierce the foam, use a pick machine to put a pointed steel pick on the end of it.

3. Ask students how a silk arrangement is constructed.

How is a silk arrangement constructed?

a) Choose the basic shape the arrangement will take.
b) Choose the colors and flowers to use.
c) Select a container that will complement the flowers and their surroundings.
d) Assemble the tools and materials to be used.
    1) Dry foam or Styrofoam™
    2) Container and anchoring device
    3) Flowers and foliage
    4) Sheet moss or Spanish moss and fern pins or greening pins
    5) Wire cutters
    6) Pan melt glue, melted
e) Anchor the holding device in the container.
f) Cover the holding device with moss.
g) Dip the ends of the flowers in pan melt glue before inserting them into the foam.
h) Arrange the flowers in the desired shape.

F. Other Activities

Visit a wholesaler or craft store that has a large variety of silk flowers. Look at the different kinds and colors of flowers.

G. Conclusion

Silk or permanent flowers are an excellent addition to a flower shop. They fill specific needs for customers. Designers should know the differences in arranging fresh and silk flowers and be able to construct silk arrangements that will fill their customers' needs.

H. Competency

Construct a silk arrangement.

I. Answers to Evaluation

1. c
2. d
3. a
4. a
5. b
6. a
7. a
8. b
9. a

UNIT VI - TYPES OF DESIGNS

Name ____________________

Lesson 7: Silk Arrangements

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. To cut the stems on silk flowers, use:

   a. Ribbon scissors.
   b. Floral shears.
   c. Wire cutters.
   d. A floral knife.

2. How are silk flowers prepared for arranging?

   a. Wash and dry them.
   b. Spray them with spray starch.
   c. Dip them into a preservative.
   d. Bend them into their natural shapes.

3. How should the foam be prepared for a silk arrangement?

   a. Anchor the foam to the container by wedging or gluing it in the container.
   b. Wet the foam once it is in the container so that sheet moss will stick to it.
   c. Glue sheet moss to the foam to make sure it does not come off.
   d. Foam preparation is not needed since the foam comes with the container.

Mark "a" if the statement is true for silk flower arrangements or "b" for fresh flowers arrangements.

4. ____ Available in a wider variety of colors and types

5. ____ Use foliage to hide the foam

6. ____ Made to last a very long time

7. ____ Stems of flowers should be glued into place

8. ____ Stems of flowers cannot usually be bent into desired shapes

9. ____ Wire can increase stem lengths

a. Silk arrangement

b. Fresh arrangement

JS 7.1: Constructing a Silk Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a silk arrangement.

Materials and Equipment:

1. Dry foam or Styrofoam™
2. Container
3. Silk flowers and silk foliage
4. Sheet moss or Spanish moss
5. Fern or greening pins
6. Wire cutters
7. Pan melt glue, melted
8. Wire and florist tape, if needed

Procedure:

1. Choose the basic shape the arrangement will take.

2. Choose the colors and flowers to use.

3. Select a container that will complement the flowers and their surroundings.

4. Assemble the tools and materials to be used.

5. Anchor the holding device in container.

6. Cover the holding device with moss.

7. Dip the ends of the flowers in pan glue before inserting them into the foam.

8. Arrange the flowers in the desired shape.

Evaluation Criteria:

Points:

- _______ Container is clean
- _______ Container complements and is in scale with the flowers
- _______ Foam is secured in the container
- _______ Dry foam or Styrofoam™ is covered with sheet moss or Spanish moss
- _______ Flower ends have been dipped in pan glue before insertion
- _______ Line is established
- _______ Form of the arrangement is filled in
- _______ Filler is added
  - _______ Filler does not dominate
  - _______ Filler is added evenly
- _______ Foliage is added
  - _______ Foliage complements the arrangement

_______ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 8: Dried Arrangements

Objective: The student will be able to construct a dried arrangement.

Study Questions

1. **What are the different techniques for preserving fresh flowers and foliage?**
2. **How is it different to arrange with dried flowers as opposed to silk or fresh flowers?**
3. **How are dried arrangements constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    - a) JS 8.1: Constructing a Dried Flower Arrangement

Lesson 8: Dried Arrangements

TEACHING PROCEDURES

A. Review

Lesson 7 presented information on arranging with silk flowers and how that differs from fresh flowers. This lesson will address how arranging with dried flowers differs from both fresh and silk flowers as well as provide information about various drying techniques.

B. Motivation

Show students a dried arrangement in comparison to a silk one and ask what the differences are.

C. Assignment

D. Supervised Study

E. Discussion

NOTE: The word "preservative" is used with two different meanings in the area of floristry. Chemicals that are used to extend the life of fresh cut flowers by several days are called preservatives. However, these chemicals do not totally inhibit the natural aging process of plant materials. Flowers held in preservative solutions will eventually fade and die. On the other hand, "preserving" fresh flowers refers to several different processes that attempt to "permatize" a flower or a leaf. The process usually does not retain all the characteristics of the fresh plant material, but the resulting plant parts may be used in novel ways for flower arranging and presentation.

1. Ask the students how fresh flowers can be preserved.

   What are the different techniques for preserving fresh flowers and foliage?

   a) Drying
      1) Air drying
      2) Silica gel - flowers are buried in material for drying
   b) Glycerinizing - uses one part glycerin to two parts water to preserve foliage
      NOTE: Ethylene glycol (antifreeze) is an excellent substitute for glycerin. However, it is poisonous if swallowed, so precautions should be taken.
   c) Skeletonizing - uses boric acid to remove "flesh" from leaves
   d) Pressing

2. Ask students what factors must be considered when arranging with dried flowers.

   How is it different to arrange with dried flowers as opposed to silk or fresh flowers?

   a) Dried flowers are often on their own dried stems. These stems are more brittle and less permanent than those of silk flowers.
   b) Some dried flower stems may be very weak as well as brittle. To arrange these flowers, it may be necessary to use a pick machine and attach metal picks to the stems. Several flowers are usually grouped together when a pick is used.
   c) A softer dry foam is available for the easier insertion of dried stems.

- d) As with silk arrangements, cover the foam with sheet moss or Spanish moss.
- e) Stem lengths can be increased by adding wire or taping picks.
- f) Because dried flowers are often on their own dried stems, the stems are not able to bend.
- g) Most dried flowers are lightweight, so it may be necessary to use a heavy container or to add weight to a lightweight container such as a basket.

3. Ask the students if they know how to arrange dried flowers.

How are dried arrangements constructed?

- a) Choose the desired shape for the arrangement.
- b) Choose the color and type of flowers, as well as the other material to be used.
- c) Select the container that complements the selected arranging material.
- d) Assemble the tools and materials that will be used.
  - 1) Dry foam or Styrofoam™
  - 2) Container and anchoring device
  - 3) Dried flowers and other material
  - 4) Sheet moss or Spanish moss
  - 5) Fern or greening pins
  - 6) Wooden or metal picks
  - 7) Melted pan melt glue
- e) Anchor the holding device in the container.
- f) Cover the foam with moss.
- g) Arrange the flowers in the desired shape.
- h) Dip the stem of each flower into the glue and insert the stems into the foam, arranging the flowers.

F. Other Activities

Dry flowers by using all the different methods described.

G. Conclusion

Arranging with flowers that have been preserved is quite similar to arranging with fresh or silk flowers, with a few exceptions. The most notable exception is that the stems of dried flowers are brittle and cannot bend.

H. Competency

Construct a dried arrangement.

I. Answers to Evaluation

1. b
2. b
3. d
4. a
5. d

UNIT VI - TYPES OF DESIGNS

Name ____________________

Lesson 8: Dried Arrangements

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following is a good drying agent used to preserve flowers?

   a. Ammonium nitrate
   b. Silica gel
   c. Rubbing alcohol
   d. Glycerin

2. How many parts of water should be mixed with one part of glycerin to glycernize foliage?

   a. 1
   b. 2
   c. 4
   d. none

3. If stems are very brittle, what should be done to support them?

   a. Attach wire to the end of the stem.
   b. Attach wire around the length of the stem.
   c. Attach a wooden pick with a pick machine.
   d. Attach a metal pick with the pick machine.

4. Since dried flowers are lightweight, what special considerations should the container receive?

   a. It should be heavier, or a weight should be added.
   b. It should be made of plastic so it will hold the arrangement down.
   c. It should be filled with marbles to keep it down.
   d. No special considerations are needed.

5. What should be used to cover the foam in dried arrangement?

   a. Dried flowers
   b. Dried foliage or silk foliage
   c. Dried foliage or sheet moss
   d. Sheet moss or Spanish moss

JS 8.1: Constructing a Dried Flower Arrangement

Objective: Upon completion of this job sheet, the student will be able to construct a dried flower arrangement.

Materials and Equipment:

1. Dry foam or Styrofoam™
2. Container and anchoring device
3. Dried flowers and other material
4. Sheet moss or Spanish moss
5. Fern or greening pins
6. Wooden or metal picks
7. Melted pan melt glue

Procedure:

1. Choose the desired shape for the arrangement.
2. Choose the colors, dried flowers, and material to be used.
3. Select a container that complements the selected arranging material.
4. Assemble the tools and materials that will be used.
5. Anchor the holding device in the container.
6. Cover the foam with moss.
7. Plan the arrangement.
8. Dip the stem of each flower into the glue and insert it into the foam, arranging the flowers in the desired shape.

Evaluation Criteria:

Points:

_______ Container is clean

_______ Dry foam or Styrofoam™ is used

_______ Foam is secured in the container

_______ Foam is covered with sheet moss or Spanish moss

_______ Line is established

_______ Form of the arrangement is filled in

_______ Filler is added

  _______ Filler does not dominate

  _______ Filler is added evenly

_______ Preserved foliage is added

  _______ Foliage complements the arrangement

_______ Design is balanced

_______ Total Points

UNIT VI - TYPES OF DESIGNS

Lesson 9: Dish Gardens

Objective: The student will be able to construct a dish garden.

Study Questions

1. **What factors should be considered when selecting plants for a dish garden?**
2. **What are the components of a dish garden?**
3. **How is a dish garden constructed?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VI.
2. Job Sheet
    a) JS 9.1: Constructing a Dish Garden

UNIT VI - TYPES OF DESIGNS

Lesson 9: Dish Gardens

TEACHING PROCEDURES

A. Review

Lesson 8 presented information on constructing a dried arrangement. This lesson will focus on constructing a dish garden.

B. Motivation

Display a finished dish garden.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what factors need to be considered when selecting plants for a dish garden.

   What factors should be considered when selecting plants for a dish garden?

   Several factors need to be considered when determining the compatibility of the plants.

   a) Cultural requirements
      1) Light requirements
      2) Water needs
      3) Temperature
   b) Height
   c) Rate of growth
   d) Form
   e) Color
   f) Texture

2. Ask students what components are needed to construct a dish garden.

   What are the components of a dish garden?

   a) Appropriate container
   b) Gravel or pebbles
   c) Sterile medium
   d) Plants
   e) Sheet moss
   f) Plant Shine®
   g) Accessories or decorations

3. Ask students how to construct a dish garden.

How is a dish garden constructed?

a) Select an appropriately sized container, usually four to six inches deep.
b) Make sure the container is clean.
c) Cover the bottom of the container with gravel or pebbles.
d) Fill the container halfway with a sterilized medium.
e) Remove the plants from their pots.
f) Following the principles of design, place taller plants toward the back of the dish, shorter ones in front. Make sure there is soil in and around the roots of the plants.
g) If necessary to cover all the plant roots, fill the container almost to the top with more of the medium.
h) Press the soil firmly around the plants.
i) Water the plants, being careful not to over water them.
j) Cover the medium with sheet moss.
k) Clean the plant leaves with a commercial cleaner (such as Plant Shine®) or a damp cloth.
l) Fresh flowers can be placed in water picks and added to the dish garden. Silk flowers can be stuck directly into the soil. A seasonal accessory, like a holiday pick or a bow, can also be added.

F. Other Activities

Have the students construct a dish garden.

G. Conclusion

Selecting the proper plants and constructing a dish garden are skills that a floral shop employee must master.

H. Competency

Construct a dish garden.

I. Answers to Evaluation

1. c
2. b
3. d
4. b
5. c
6. a

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UNIT VI - TYPES OF DESIGNS

Lesson 9: Dish Gardens

Name ____________________

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. A dish garden is:
   a. A dish carried into the garden.
   b. A dish with a fresh foliage arrangement.
   c. A container planted with multiples of live green plants.
   d. A dish that is used under potted plants.

2. What can cause plants to die in a dish garden?
   a. Proper drainage
   b. Over watering
   c. Sufficient water
   d. All of the above

3. Which of the following accessories can be added to a dish garden?
   a. Holiday picks
   b. Bows
   c. Fresh flowers
   d. All of the above

4. Following the principles of design, where should tall plants be placed in the design?
   a. Anywhere
   b. In the back
   c. In the front
   d. On both sides

5. The purpose of adding sheet moss to a dish garden is to:
   a. Keep insect populations low.
   b. Act as a mulch so it never needs water.
   c. Cover the soil to look like grass.
   d. Do nothing, so it should not be used.

6. Why is it important that the growing medium be sterile?
   a. So that it is free of diseases and weed seeds
   b. So that the rate of growth for the plant is consistent
   c. To keep it from drying out
   d. To protect plants from over watering

JS 9.1: Constructing a Dish Garden

Objective: Upon completion of this job sheet, the student will be able to construct a dish garden.

Materials and Equipment:

1. Appropriate container
2. Gravel or pebbles
3. Sterile medium (preferably soilless)
4. Plants
5. Sheet moss
6. Plant Shine®
7. Accessories or decorations

Procedure:

1. Select an appropriately sized container, usually four to six inches deep.

2. Make sure the container is clean.

3. Cover the bottom of the container with gravel or pebbles.

4. Fill the container halfway with a sterilized medium.

5. Remove the plants from their pots.

6. Following the principles of design, place the taller plants toward the back of the dish, and the shorter ones in front. Make sure there is soil in and around the roots of the plants (Figure 1.1).

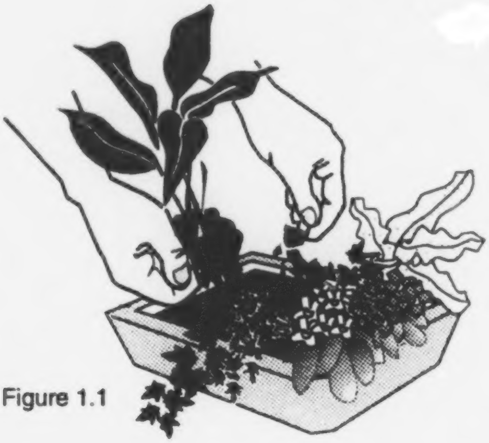

Figure 1.1

7. If necessary to cover all the plant roots, fill the container almost to the top with more medium.

8. Press the medium firmly around the plants.

9. Water the plants, being careful not to over water them.

10. Cover the medium with sheet moss.

11. Clean the plant leaves with a commercial cleaner (such as Plant Shine®) or a damp cloth.

12. Fresh flowers may be placed in water picks and added to the dish garden. Silk flowers may be stuck directly into the soil. A seasonal accessory, like a holiday pick or a bow, may also be added (Figure 1.2).

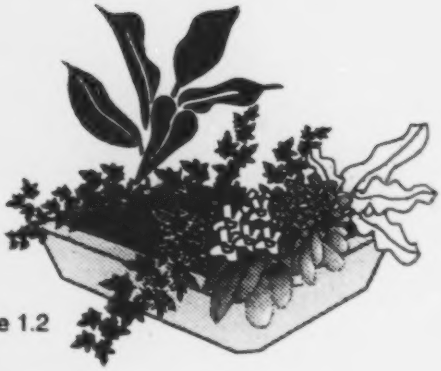

Figure 1.2

Evaluation Criteria:

Points:

_______ Low, shallow container is used

_______ Container is clean

_______ Bottom of the container is covered with gravel or pebbles

_______ Container contains an appropriate level of sterilized medium (half full or roots of plants covered)

_______ Taller plants are in back with the shorter ones in front

_______ Like plants are grouped together (e.g. all succulents)

_______ Soil is firmed around plants

_______ Plants are watered, but not drowning

_______ Sterile medium is covered with sheet moss

_______ Plant leaves are cleaned

_______ Suitable accessories are added if necessary

_______ Total Points

UNIT VII - SHOP OPERATIONS

Lesson 1: Sales Transactions

Objective: The student will be able to demonstrate sales transactions.

Study Questions

1. **What are the steps in a sales transaction?**
2. **What are florist wire services and how do they operate?**
3. **How are wire service orders sent and received?**
4. **How should customer complaints be handled?**
5. **What is proper telephone etiquette?**
6. **What information should be obtained and recorded on a sales ticket for telephone or direct orders?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
    a. AS 1.1: Completing a Sales Slip

TEACHING PROCEDURES

C. Introduction

Being a successful salesperson requires skill and a knowledge of sales and procedures. If a florist's employees are not able to handle customers successfully, they will not be successful on the job. In *Secrets of a Winning Personality*, the author writes that if a person is friendly, other people feel wanted and appreciated. To have a winning personality—and be a good salesperson—you must first really like people. A good salesperson LISTENS to the customers and is truly interested in them and what they want.

D. Motivation

Ask students to recall times when they have been irritated with sales clerks in a retail store. Also ask them to recall when they have been pleased with sales clerks.

E. Assignment

F. Supervised Study

G. Discussion

1. Ask students to list what the steps in a successful sales transaction are.

   What are the steps in a sales transaction?

   a) Greet customers
   b) Ask questions
   c) Determine needs
   d) Make suggestions
   e) Overcome objections
   f) Close

2. Ask students to describe how they would send flowers to a friend or relative in a distant city.

   What are florist wire services and how do they operate?

   a) Originally, the first wire service, Florist Transworld Delivery, used wires or telegraphs to send orders to member florists.
   b) Today, all orders are sent via telephone, computer, or fax machine.
   c) Popular wire services
      1) Florist Transworld Delivery (FTD)
      2) American Floral Services (AFS)
      3) Redbook
      4) Telefloral
      5) Florifax International
      6) Carik Services, Inc.

3. Ask students how wire service orders are sent and received.

How are wire services orders sent and received?

If an order is received through a wire service, be sure to include the sending shop's wire service number in the order. When a wire service order is sent from the shop, include the name, address, telephone number, and wire service number of the receiving shop.

4. Handling customer complaints is sometimes a difficult task, but one which an employee must be able to tactfully and successfully do. Ask students how an employee should handle any complaints a customer might have.

How should customer complaints be handled?

a) Employees should follow shop policy for handling complaints.
b) They should listen to the customer's entire story without interrupting and then repeat the major points to show that they have been listening.
c) An employee receiving a complaint should remain calm, using relaxed body language and a calm tone of voice.
d) Employees should not make excuses or minimize the problem; they should try to assure the customer that they will find the cause of the problem and keep it from happening again.
e) Employees should never argue with customers.
f) The goal when dealing with customer complaints is to always resolve the problem as positively as possible.
g) If an employee finds that he or she is not able to handle the complaint, the employee should always ask the manager to step in and handle it.

5. Ask students what good telephone etiquette is.

What is proper telephone etiquette?

a) Keep an order form by the telephone.
b) Make sure a pen and pencil are also by the telephone.
c) Answer the phone promptly, stating the name of the shop and your name.
d) Speak clearly and distinctly.
e) Get the customer's name.
f) Use a friendly voice.
g) Do not keep the customer waiting on the line.
h) Do not eat, chew gum, or drink while talking on the telephone.

6. Ask students what information should be recorded when filling out a sales ticket for an order taken over the telephone or in person.

What information should be obtained and recorded on a sales ticket for telephone or direct orders?

a) Date
b) Name, address, and telephone number of the sender
c) Information for pickup and delivery
d) Name, address, and telephone number of the recipient
e) Delivery date
f) Clear instructions
g) Any special instructions

h) Purpose (ie. birthday, wedding, funeral, etc.)
i) Message to be on the card
j) List and number of items purchased
k) Description of how the order should be processed
l) Price of the single item with the extended price multiplied from it
m) Subtotal
n) Telephone charge (if it is a wire service order)
o) Delivery charge
p) Sales tax
q) Total
r) Form of payment
s) Name of salesperson
t) Name of designer filling the order

H. Other Activities

1. Practice making change (use Monopoly money).

2. Complete a credit slip.

3. Role-play handling a customer complaint.

4. Complete a mock sales transaction.

I. Conclusion

Taking orders either in person or over the telephone is an important skill for any flower shop employee. Many things need to be remembered when filling out a sales slip.

J. Competency

Demonstrate a sales transaction.

K. Answers to Activity Sheet

See the following page for the completed sales slip.

L. Answers to Evaluation

1.	d
2.	c
3.	a
4.	d
5.	a
6.	b
7.	b

Invoice No.

Flower Shop

Sold to: **Todd Comstock**

Address **10 State Street**

City, State **Anytown, (your state)** Zip Code **10001**

Phone No. **555-2361**

Sold by **Student Name**	Date **August 5**	Phoned In ✓ Out	Wire In Out	Other In Out

Sending Wire No.	Shop Wire No.	Customer No.	Delivery Date **Wed., Aug. 6** **2:00** A. M./P. M.

Cash	C.O.D.	Charge **MasterCard**	Card No. **1007336374805638**	Exp. Date **March, (year)**

Qty.	Description	Amount	
1	dozen boxed roses	49	00
	Delivery Charge	2	50
	Relay Charge		
	Phone		
	Subtotal	51	50
	State Tax	3	09
Thank You!	Total	54	59

Deliver to: **Sheila Comstock**

Address **101 North Street**

City, State **Anytown** Zip Code **10301**

Baby Boy/Girl	Birthday	Holiday	Congrat.	Anniver. ✓	Recovery	Sympathy	Other

Card

I'm still as happy as the day I married you. I love you. Todd.

UNIT VII - SHOP OPERATIONS

Name ____________________

Lesson 1: Sales Transactions

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Good telephone etiquette is important to a florist because:

   a. It determines the image of the shop.
   b. A large percentage of the florist's business is conducted over the telephone.
   c. One should always be courteous to customers.
   d. All of the above.

2. What two items should be kept by the telephone in a flower shop?

   a. Calculator and price list
   b. Flower list and price list
   c. Pen and order pad
   d. Order pad and calculator

3. What information should be stated when answering the flower shop telephone?

   a. Shop name and name of person answering the phone
   b. Appropriate seasonal greeting and shop name
   c. Name of person answering the phone and seasonal greeting
   d. All of the above

4. Why should the person taking the order always put his or her name on the order form?

   a. So the owner will know who should pay for the order if the customer does not accept it.
   b. If anything is wrong with the order, the manager will know who to blame.
   c. So that person can handle the customer's complaint if one should arise.
   d. So the designer will know who to ask if he or she has any questions about the order.

5. Besides the item's cost and the sales tax, what other expenses might be included in the cost of a wire service order?

   a. Service charge
   b. Fax fee
   c. Telephone tax
   d. Computer charge

6. What is the first step in a sales transaction?

   a. Ask questions
   b. Greet the customer
   c. Determine needs
   d. Overcome objections

7. Which of the following is NOT a florist wire service?

   a. Telefloral
   b. AIFD
   c. FTD
   d. AFS

Completing a Sales Slip

Complete the sales slip on the back of this sheet using the information given below.

It is Tuesday, August 5. Todd Comstock is calling to order a dozen roses boxed and delivered to his wife Sheila for their anniversary. He gives his address as 10 State Street, Anytown, and his zip code as 10001. His phone number is 555-2361. Mr. Comstock wants the flowers delivered at 2:00 on the next day to his wife's business at 101 North Street; the zip code is 10301. He requests a card with the following message: "I'm still as happy as the day I married you. I love you. Todd." Payment is made with his MasterCard, which has an expiration date of next March and a card number of 1007336374805639. The cost of his order is $49.00, the delivery charge is $2.50, and the state sales tax is 6 percent. (Use your own state and the current year to complete the sales slip.)

Invoice No.

Flower Shop

Sold to:

Address

City, State Zip Code

Phone No.

Sold by	Date	Phoned In Out	Wire In Out	Other In Out

Sending Wire No.	Shop Wire No.	Customer No.	Delivery Date A. M./ P. M.

Cash	C.O.D.	Charge	Card No.	Exp. Date

Qty.	Description	Amount	
	Delivery Charge		
	Relay Charge		
	Phone		
	Subtotal		
	State Tax		
Thank You!	Total		

Deliver to:____

Address____

City, State____________________Zip Code________________

Baby Boy/Girl	Birthday	Holiday	Congrat.	Anniver.	Recovery	Sympathy	Other

Card

____

____

____

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UNIT VII - SHOP OPERATIONS

Lesson 2: Floral Delivery

Objective: The student will be able to deliver a floral arrangement.

Study Questions

1. **Why is having a good delivery person critical?**
2. **What skills are needed in the delivery person?**
3. **How are orders routed?**
4. **What are the steps in making a delivery?**
5. **What are the three types of delivery services?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Job Sheets
    a) JS 2.1: Routing Floral Orders for Delivery
    b) JS 2.2: Making a Floral Delivery

UNIT VII - SHOP OPERATIONS

Lesson 2: Floral Delivery

TEACHING PROCEDURES

A. Review

The previous lesson presented information on taking orders, including sending and receiving orders from various wire services. This lesson will focus on delivering the floral order.

Delivering arrangements and flowering potted plants is a personalized service that is often offered to the florist's customers. It is especially appreciated when the order is for someone in the hospital or for a funeral. Wire service orders, of course, must be delivered.

B. Motivation

1. Ask a delivery person from a local flower shop to speak to the class about his or her job.

2. Order flowers to be delivered to the classroom. Have students observe the delivery person. Ask them to note various aspects of the delivery person and the delivery, such as whether or not he or she was courteous or whether a reminder to water the flowers was given.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why having a GOOD delivery person is so important.

Why is having a good delivery person critical?

a) The delivery person is an extremely important representative of the flower shop. Often, this person is the only one with whom the customer has contact.
b) The delivery person is the public relations connection between the recipient of the delivery and the flower shop. If a delivery is not handled well, the good sales work and the designs of the other employees will be in vain.

2. Ask the students if they can list what skills they think a delivery person should have.

What skills are needed in the delivery person?

a) Driving and vehicle maintenance skills
    1) Ability to drive safely
    2) Courteous attitude - not only in person, but in driving
    3) Will keep the delivery van CLEAN and in good running condition
    4) Knowledge of the delivery area
    5) Should have a good driving record
    6) May need a commercial driver's license
b) Communication skills
    1) Reading, writing, and spelling skills
    2) Able to communicate with people

        3) Knows how to dress properly
        4) Able to speak proper English
    c) Floral skills
        1) May need some arranging skills
        2) Able to identify the flowers they are delivering and answer customer questions
        3) Knows the temperature requirements of the flowers

3. Ask students if they know how to route orders.

   How are orders routed?

   a) Sort orders according to the date of delivery.
   b) Sort orders according to the time they are to be delivered.
   c) Sort orders according to where they are to be delivered.
   d) Prepare a list of deliveries placing them in chronological order.
   e) Route with minimum mileage.

4. Ask the students if they can recognize the steps in making a delivery.

   What are the steps in making a delivery?

   a) Sort orders according to time and area of delivery.
   b) Plot a route.
   c) After establishing a route, make out a list of stops in order.
   d) Some flower shops call private residences to check if someone will be home to accept the delivery. For hospital arrangements, call to check that the recipients are still patients and are able to accept flowers.
   e) If the weather is extremely warm or cold, start the delivery vehicle 10 to 15 minutes before loading it.
   f) Pack the vehicle, making sure that items to be delivered last are loaded first. Keep taller arrangements to the sides. Place balloons in garbage bags.
   g) Make sure the arrangements are not going to fall over during transport. They should be packed in cardboard delivery bases or put in boxes with wadded up newspaper, sandbags, or tissue paper wedged around them.
   h) Make sure the address for each arrangement is easy to see and read.
   i) When arriving at the delivery site, always go to the front door unless instructed otherwise.
   j) Carry a one-sided arrangement with the front of the arrangement facing the recipient.
   k) Knock on the door or ring the doorbell. When the door is answered, greet the recipients cordially, give your name, and inform them they have a delivery from your flower shop. Briefly give a tip that they should add water to the arrangement every day. Answer any questions they might have about the arrangement or plant. Ask for their signature.
   l) If no one is home to receive the arrangement, follow shop policy. It is often acceptable to deliver the arrangement to a neighbor and leave a note or delivery tag on the recipient's door informing him or her where the arrangement is located. Later, call to make sure the arrangement was received. Be sure to note the time the item was left on the delivery sheet. Another alternative is to leave a note on the door with a notice of the attempt to deliver asking the recipient to call the shop or come in and pick up the arrangement. Return the arrangement to the shop.

5. Ask students what three types of delivery services florists can use.

   What are the three types of delivery services?

   a) The shop makes its own delivery.

b) The shop makes deliveries in cooperation with other shops.
c) The shop uses a commercial delivery service.

F. Other Activities

1. Give students a large map of the area and a number of mock orders. Have them route the orders.

2. Have students deliver flowers within the school to practice making deliveries.

G. Conclusion

Having a good delivery person is important in order for a flower shop to maintain good customer relations. The delivery person must have certain basic abilities, such as driving and vehicle maintenance ability, communication skills, and floral skills, and must be able to plot a route and make a delivery correctly and efficiently.

H. Competency

Deliver a floral arrangement.

I. Answers to Activity Sheet

The shortest routes for JS 2.1 are as follows:

Route for 05/01, a.m. deliveries - Broadway, Oak, Vandiver, Willow, University St.
Route for 05/01, p.m. deliveries - Broadway, Williams, Stadium, Willow
Route for 05/02, a.m. deliveries - Astra, Stadium, Ballenger, Ruben, University Ave.
Route for 05/02, p.m. deliveries - Astra, Stadium, Providence, Ashwood, Valley View, Alexander, Sunshine, Cosmo

J. Answers to Evaluation

1. d
2. c
3. c
4. a
5. b
6. d

UNIT VII - SHOP OPERATIONS

Name ____________________

Lesson 2: Floral Delivery

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. A delivery person needs to be able to:

   a. Drive safely and courteously.
   b. Dress well.
   c. Know the care of the flowers they are delivering.
   d. All of the above.

2. If a person is not home to receive a delivery, the delivery person should:

   a. Leave the arrangement on the front porch.
   b. Leave the arrangement in a protected place.
   c. Find a neighbor who will agree to give the arrangement to the person when he or she returns home.
   d. Wait at the house until the person comes home.

3. What can be done to keep delivery items upright?

   a. Empty water from the vases.
   b. Wrap each item in several layers of newspaper.
   c. Pack the items in cardboard delivery boxes and wedge crushed newspaper or sand bags around them.
   d. It does not matter if they are upright or not.

4. Why is having a good delivery person critical?

   a. The delivery person may be the only direct contact the customer has with the floral shop.
   b. The delivery person arranges the flowers as well as delivers them.
   c. The delivery person picks up deliveries for wire service orders.
   d. The delivery person has little contact with the public; therefore, attire is not important.

5. Why is it important for the delivery person to know the delivery area?

   a. To eliminate the need to turn around
   b. So time is not spent driving around looking for delivery locations
   c. So the driver knows where rest areas are located
   d. All of the above

6. What is the first step in routing orders?

   a. Sort orders according to where they are delivered
   b. Sort orders according to the time they are to be delivered
   c. Sort orders by the type of arrangement
   d. Sort orders by the date of delivery

JS 2.1: Routing Floral Orders for Delivery

Objective: Upon completion of this job sheet, the student will be able to route floral orders for delivery.

Materials and Equipment:

1. Mock floral orders
2. Map
3. Route sheet

Procedure:

1. Sort orders according to the date of delivery.

2. Sort orders according to the time they are to be delivered.

3. Sort orders according to where they are to be delivered.

4. Place the deliveries in chronological order.

5. Route the deliveries on a route sheet with minimum mileage. Use a different route sheet for each day's deliveries.

Evaluation Criteria:

Points:

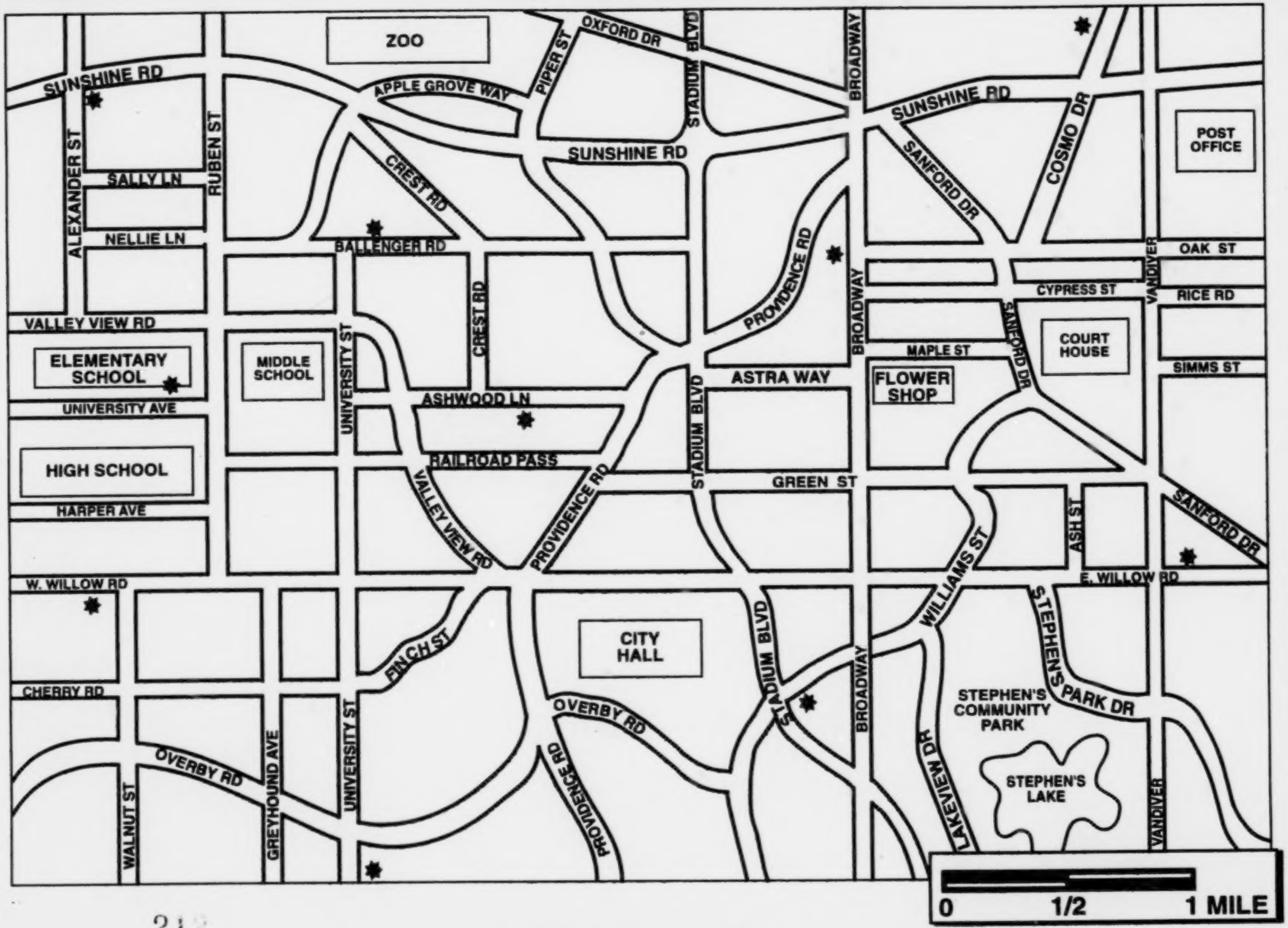
_______ Orders are separated by date of delivery

_______ Orders are sorted by time of delivery

_______ Orders are sorted by location of delivery

_______ Route is plotted with minimum mileage

_______ Total Points


ZOO
OXFORD DR
SUNSHINE RD
APPLE GROVE WAY
PIPER ST
STADIUM BLVD
BROADWAY
SUNSHINE RD
SUNSHINE RD
COSMO DR
POST OFFICE
ALEXANDER ST
SALLY LN
RUBEN ST
CREST RD
SANFORD DR
NELLIE LN
BALLENGER RD
PROVIDENCE RD
OAK ST
VANDIVER
CYPRESS ST
RICE RD
CREST RD
BROADWAY
SANFORD DR
VALLEY VIEW RD
COURT HOUSE
ELEMENTARY SCHOOL
MIDDLE SCHOOL
UNIVERSITY ST
MAPLE ST
SIMMS ST
ASTRA WAY
FLOWER SHOP
STADIUM BLVD
ASHWOOD LN
UNIVERSITY AVE
HIGH SCHOOL
RAILROAD PASS
GREEN ST
HARPER AVE
VALLEY VIEW RD
PROVIDENCE RD
ASH ST
SANFORD DR
WILLIAMS ST
W. WILLOW RD
E. WILLOW RD
STEPHEN'S PARK DR
FINCH ST
CITY HALL
STADIUM BLVD
CHERRY RD
OVERBY RD
BROADWAY
STEPHEN'S COMMUNITY PARK
STADIUM BLVD
OVERBY RD
LAKEVIEW DR
STEPHEN'S LAKE
GREYHOUND AVE
UNIVERSITY ST
PROVIDENCE RD
VANDIVER
WALNUT ST
0
1/2
1 MILE

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Sold to: Derek Dawson
Address 21 Cypress St.
City, State Anywhere, Any State Zip Code 10000
Phone No. 555-6803

Date 04/29/--	Cash	Credit Card MC 3947328298479384	Delivery Date 05/01/--, p.m.

Qty.	Description	Amount	
1	Dozen Boxed Red Roses	42	50
	Delivery	2	50
	Tax	2	76
	Total	47	76

Deliver to: Dawn Dawson
Address 1603 W. Willow Rd.
City, State Anywhere, Any State Zip Code 10002

Sold to: Faith Murray
Address 110 Cosmo Dr.
City, State Anywhere, Any State Zip Code 10000
Phone No. 555-4958

Date 04/29/--	Cash ✓	Credit Card	Delivery Date 05/02/--, p.m.

Qty.	Description	Amount	
1	"Spring Bouquet"	25	50
	Delivery	2	50
	Tax	1	72
	Total	29	72

Deliver to: Evelyn Robertson
Address 8 Alexander St.
City, State Anywhere, Any State Zip Code 10001

Sold to: Rick Wagner
Address 12 Nellie Ln
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-9643

Date 04/29/--	Cash	Credit Card Visa 8624956384592548	Delivery Date 05/01/--, p.m.

Qty.	Description	Amount	
1	Rose Bud Vase	12	75
	Delivery	2	50
	Tax		93
	Total	16	18

Deliver to: Emily Parker
Address 35 Williams St.
City, State Anywhere, Any State Zip Code 10002

Sold to: Tony Martinez
Address 118 Lake View Dr.
City, State Anywhere, Any State Zip Code 10003
Phone No. 555-6127

Date 04/29/--	Cash ✓	Credit Card	Delivery Date 05/02/--, a.m.

Qty.	Description	Amount	
1	Birthday Carnations Bud Vase	10	50
3	Mylar Balloons	6	75
	Delivery	2	50
	Tax	1	21
	Total	20	96

Deliver to: Stacey Fuller
Address 324 Ballenger Rd.
City, State Anywhere, Any State Zip Code 10001

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Sold to: Cathy Evans
Address 58 Apple Grove Way
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-7931

Date	Cash	Credit Card	Delivery Date
04/29/--		Dis. 5624896312387853	05/02/--, p.m.

Qty.	Description	Amount	
1	Dried Flower Topiary	45	50
	Delivery	2	50
	Tax	2	94
	Total	50	94

Deliver to: Casey Bishop
Address 125 Ashwood Ln.
City, State Anywhere, Any State Zip Code 10001

Sold to: Julie Tsai
Address 203 Ashwood Ln.
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-9364

Date	Cash	Credit Card	Delivery Date
04/29/--	✓		05/01/--, a.m.

Qty.	Description	Amount	
1	Dish Garden	13	25
	Delivery	2	50
	Tax		97
	Total	16	72

Deliver to: Alan Williams
Address 1404 E. Willow Rd.
City, State Anywhere, Any State Zip Code 10000

Sold to: Paul Lewis
Address 125 N. University St.
City, State Anywhere, Any State Zip Code 10001
Phone No. 555-6214

Date	Cash	Credit Card	Delivery Date
04/29/--	✓		05/02/--, a.m.

Qty.	Description	Amount	
1	Potted African Violets	16	50
	Delivery	2	50
	Tax	1	16
	Total	20	16

Deliver to: Kia Hughes
Address 10 University Ave. (Jefferson Elementary)
City, State Anywhere, Any State Zip Code 10001

Sold to: Pam Jeffries
Address 14 Walnut St.
City, State Another Town, Any State Zip Code 30001
Phone No. 555-9630

Date	Cash	Credit Card	Delivery Date
04/29/--		MC 3695128569428010	05/01/--, a.m.

Qty.	Description	Amount	
5	Mylar Balloons	11	25
1	Stuffed Dragon Toy	8	50
	Delivery	2	50
	Tax	1	36
	Total	23	61

Deliver to: Ben Jeffries
Address 329 N. Broadway
City, State Anywhere, Any State Zip Code 10001

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Sold to: Kelley Collins
Address 209 Cherry Rd.
City, State Anywhere, Any State Zip Code 10002
Phone No. 555-0051

Date 04/29/--	Cash ✓	Credit Card	Delivery Date 05/02/--, p.m.

Qty.	Description	Amount	
1	Dried Floral Eucalyptus Wreath	35	50
	Delivery	2	50
	Tax	2	33
	Total	40	33

Deliver to: Nancy Martin-Lowe
Address 207 Cosmo Dr.
City, State Anywhere, Any State Zip Code 10000

Sold to: Chad McKinney
Address 1121 Eddings Way
City, State Another Town, Any State Zip Code 20001
Phone No. 555-9500

Date 04/29/--	Cash	Credit Card Visa 7436920158426305	Delivery Date 05/01/--, a.m.

Qty.	Description	Amount	
1	"New Arrival" Bouquet	22	50
1	"Baby Bear" Stuffed Toy	5	25
5	Assorted Helium Balloons	3	75
	Delivery	2	50
	Tax	2	10
	Total	36	10

Deliver to: James, Tammy, and "Baby Boy" Simpson
Address 304 S. University St.
City, State Anywhere, Any State Zip Code 10002

JS 2.1 Continued

Route Sheet

Driver: ______________________________ Date: ______________

Departure Time: ______________________ Return Time: ______________________

Stop Number	Recipient	Address

JS 2.2: Making a Floral Delivery

Objective: Upon completion of this job sheet, the student will be able to make a floral delivery.

Materials and Equipment:

1. Plotted delivery route (from previous exercise)
2. Arrangements
3. Mock delivery vehicle
4. Mock delivery site

Procedure:

1. Make a list of stops in order of first delivery, second delivery, etc.

2. Pack the mock vehicle, making sure that items to be delivered last are loaded first. Keep taller arrangements to the sides. Place balloons in garbage bags.

3. Make sure the arrangements are not going to fall over during transport. They should be packed in cardboard delivery bases or put in boxes with wadded up newspaper, sandbags, or tissue paper wedged around them.

4. Make sure the address for each arrangement is easy to see and read.

5. Role-play the delivery.

    a. When arriving at the delivery site, always go to the front door unless instructed otherwise.

    b. Carry a one-sided arrangement with the front of the arrangement facing the recipient.

    c. Knock on the door or ring the doorbell. When the door is answered, greet the recipients cordially, give your name, and inform them they have a delivery from your flower shop. Briefly give a tip that they should add water to the arrangement every day. Answer any questions they might have about the arrangement or plant. Ask for their signature.

    d. If no one is home to receive the arrangement, follow shop policy. It is often acceptable to deliver the arrangement to a neighbor and leave a note or delivery tag on the recipient's door informing him or her where the arrangement is located. Be sure to note on the delivery sheet the time the item was left. Later, call to make sure the arrangement was received. Another alternative is to leave a note on the door with notice of attempt to deliver asking them to call the shop or come in and pick up the arrangement. Then return the arrangement to the shop.

Evaluation Criteria:

Points:

______ List of stops in order of delivery is made

______ Delivery vehicle is loaded with items to be delivered last loaded first

    ______ Taller arrangements are placed to the sides

    ______ Balloons are placed in garbage bags

______ Arrangements are packed so they will not fall over

______ Address for each delivery is easy to see and read

______ Delivery person goes to correct "door" as instructed

______ One-sided arrangement is carried with the front facing the recipient

______ Proper procedure is followed for addressing the recipient

______ Signature is obtained

______ Proper procedure is followed if the recipient is not available

______ Total Points

UNIT VII - SHOP OPERATIONS

Lesson 3: Calculating Prices

Objective: The student will be able to calculate the price of floral products.

Study Questions

1. **What factors are involved in determining the prices of floral arrangements?**
2. **What factors are involved in determining the prices of potted plants?**
3. **What are the methods for calculating the prices of floral products?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
    a) AS 3.1: Calculating Prices

UNIT VII - SHOP OPERATIONS

Lesson 3: Calculating Prices

TEACHING PROCEDURES

A. Review

The previous lesson presented information on delivering floral arrangements. This lesson will explain how prices are calculated. In order to make a profit, florists must know how to price their merchandise. Employees should also know how prices are determined.

B. Motivation

Show students a flower arrangement borrowed from a local flower shop. Ask them to estimate its price. Tell them the retail price. Then ask them to estimate how much it cost to make the arrangement. Tell them its cost to the florist.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what factors determine how much a florist charges for a flower arrangement.

What factors are involved in determining the prices of floral arrangements?

a) Wholesale cost of the materials
b) Freight or delivery charges
c) Overhead costs
    1) Designer labor
    2) Services rendered
    3) Business costs
    4) Cost of out-of-date merchandise
    5) Fluctuating wholesale prices
    6) Inventory insurance
    7) Shrinkage or damage to merchandise in stock
    8) Advertising costs
    9) Employee wages - in addition to the designer
    10) Taxes
d) Profit margin - what a business makes after all the expenses have been met
e) Other considerations
    1) Competition from other florists
    2) Market demand
    3) Location of the shop, both neighborhood and city

2. Ask students what factors should be considered when determining the price of potted plants?

What factors are involved in determining the prices of potted plants?

They are the same as for an arrangement except that labor costs will be less.

3. Ask students what the various methods of calculating the price of floral products are.

What are the methods for calculating the prices of floral products?

Two major ways of calculating prices are using ratios or percentages. Most florists use the ratio method because it is easier, but the percentage method takes profit margin into account.

a) Ratio method
  1) Most items are categorized into four major segments.
    (a) 5:1 ratio - items that require a lot of time, labor, and creative design talent. Examples: wedding flowers and party flowers
    (b) 4:1 ratio - designs that require some labor and design ability. Example: regular corsages
    (c) 3:1 ratio - designs that require very little labor. Examples: small arrangements, bud vases, and decorated plants
    (d) 2:1 ratio - designs that require little or no design labor. Examples: pre-made cut flower bouquets, gift items, and undecorated plants
  2) To calculate the selling price of a floral product using the ratio method, multiply the wholesale cost by the ratio amount.

For example, the wholesale cost of one floral product is $4.50. It ranks as a 3:1 ratio product. The wholesale price of $4.50 is multiplied by the ratio amount of 3.

$4.50 x 3 = $13.50

The selling price of this floral product is $13.50.

b) Percentage method - The florist determines how much a floral product will be marked up from its wholesale price. The markup is by a percentage.
  1) To calculate the selling price of a floral product using the percentage method, first convert the markup percentage to its decimal equivalent. The conversion of a percent value to its decimal equivalent is completed by dividing the percent value by 100.
  2) After converting these numbers, multiply the wholesale price by the decimal value. This number is the markup value.
  3) Now add the markup value to the wholesale price to find the item's selling price.

For example, a florist wants to add a 100% markup to one floral product. The wholesale cost of this item was $2.50. The first step is to convert the 100% markup to its decimal equivalent.

100 ÷ 100 = 1.0
(percent value) (decimal equivalent)

To calculate the markup value, multiply the wholesale price by the decimal value.

$2.50 × 1.0 = $2.50
(wholesale price) (decimal value) (markup value)

The markup value is $2.50. Add the markup value to the wholesale price to calculate the selling price.

$2.50 + $2.50 = $5.00
(markup value) (wholesale price) (selling price)

The selling price of the floral product in question is $5.00.

NOTE: A florist has three controllable areas of expense: operation expenses, labor costs, and goods costs. Florists break the percentages down in different ways, but a good breakdown is to apply 35 percent of the gross for operation expenses, 20 percent for labor costs, and 30 percent for goods cost. Net profit should be 15 percent of the gross.

F. Other Activities

G. Conclusion

Florists and their employees need to know how to determine prices for their merchandise. They may use either the ratio or percentage method, but should always keep their costs in mind when pricing the items in the shop.

H. Competency

Calculate the price of floral products.

I. Answers to Activity Sheet

1. 50 ÷ 100 = .5
   $5.20 × .5 = $2.60
   $5.20 + $2.60 = $7.80

2. 2:1 ratio
   $9.00 ÷ 12 roses = $0.75
   $0.75 × 2 = $1.50

3. 4:1 ratio
   3 roses × $0.85 = $2.55
   2 stems baby's breath × ($1.75 ÷ 20) = $0.18
   3 stems leatherleaf × ($2.00 ÷ 25) = $0.24
   $2.55 + $0.18 + $0.24 = $2.97
   $2.97 × 4 = $11.88

4. 200 ÷ 100 = 2
$7.50 ÷ 5 lily stems = $1.50
3 roses × ($6.00 ÷ 12) = $1.50
3 stems English ivy × ($2.00 ÷ 20) = $0.30
3 stems heather × ($3.00 ÷ 12) = $0.75
$6.00 ÷ 12 stems double lisianthus = $0.50
2 stems flax × ($4.50 ÷ 20) = $0.46
$5.00 ÷ 10 pompon = $0.50
⅛ package plumosa fern × $2.00 = $0.25
$1.50 + $1.50 + $0.30 + $0.75 + $0.50 + $0.46 + $0.50 + $0.25 + $2.00 floral foam + $7.00 container = $14.76
$14.76 × 2 = $29.52

J. Answers to Evaluation

1. 5:1 ratio
10 roses × $0.90 = $9.00
10 stephanotis × $1.25 = $12.50
3 ivy stems × $0.40 = $1.20
½ pkg of leatherleaf × $1.75 = $0.88
$9.00 + $12.50 + $1.20 + $0.88 = $23.58
$23.58 × 5 = $117.90

2. 2:1 ratio
$7.00 × 2 = $14.00

3. 300 ÷ 100 = 3
½ mum bunch × $3.75 = $1.88
5 carnations × $0.40 = $2.00
⅓ leatherleaf × $1.75 = $ 0.58
⅓ foam × $2.00 = $0.67
$1.88 + $2.00 + $0.58 + $0.67 + $0.50 container = $5.63
$5.63 × 3 = $16.89
16.89 + 5.63 = $22.52

4. 75 ÷ 100 = .75
$7.50 + $1.00 + $0.75 = $9.25
$9.25 × .75 = $6.94
6.94 + 9.25 = $16.19

5. a
6. b

UNIT VII - SHOP OPERATIONS

Name ____________________

Lesson 3: Calculating Prices

Date ____________________

EVALUATION

Price the following items using the ratio method. State which ratio is used in each. Round to the nearest cent. Show your work.

1. A wedding bouquet consisting of 10 roses, 10 stephanotis, 3 stems of ivy, and half a package of leatherleaf. Wholesale cost: roses = \$0.90/each; stephanotis = \$1.25/each; ivy = \$4.00/bunch of 10 stems; leatherleaf = \$1.75/package.

2. A ceramic figurine (\$7.00).

Price the following items using the percentage method. Round to the nearest cent. Show your work.

3. A party arrangement consisting of ½ bunch of pompon mums at \$3.75/bunch; 5 carnations at \$0.40 each; ⅓ bunch leatherleaf at \$1.75/package; ⅓ block floral foam at \$2.00/block; 1 container at \$6.00/dozen. The markup is 300 percent.

4. A potted chrysanthemum (\$7.50), bow (\$1.00), and pot cover (\$0.75). The markup is 75 percent.

Circle the letter that corresponds to the best answer.

5. A ratio of 5:1 is usually used when determining the price of what type of floral product?
   a. A wedding bouquet
   b. A corsage
   c. A potted plant
   d. An expensive container

6. What is the amount a business makes after all expenses are paid called?

a. Overhead
b. Profit margin
c. Merchandise control
d. Expense margin

Lesson 3: Calculating Prices

Name ____________________________

Pricing

Calculate the retail prices for the following items using the appropriate method. Round to the nearest cent. Show your work.

1. Calculate the price of an African violet with a wholesale cost of $5.20 and a 50 percent markup.

2. What is the price of a single rose if a dozen roses have a wholesale cost of $9.00? Use the ratio method.

3. Using the ratio method, calculate the price of a corsage consisting of 3 roses, 2 stems of baby's breath, and 3 stems of leatherleaf. Wholesale costs: roses = $0.85/each; baby's breath = $1.75/bunch of twenty stems; leatherleaf = $2.00/bunch of 25 stems.

4. Calculate the price of an arrangement consisting of 1 stem of stargazer lilies, 3 garden roses, 3 stems of English ivy, 3 stems of heather, 1 stem of double lisianthus, 2 stems of flax, 1 pompon, and ⅛ of a package of plumosa fern in a container with a block of floral foam. Wholesale costs: lilies = $7.50/bunch of five stems; roses = $6.00/dozen; English ivy = $2.00/bunch of 20 stems; heather = $3.00/bunch of 12 stems; double lisianthus = $6.00/dozen; flax = $4.50/bunch of 20 stems; pompon = $5.00/bunch of 10 stems; plumosa fern = $2.00/package; floral foam = $2.00/block; container = 7.00. The markup is 200 percent.

UNIT VII - SHOP OPERATIONS

Lesson 4: Taking Inventory

Objective: The student will be able to assist in completing an inventory.

Study Questions

1. **What information should be included in an inventory?**
2. **How often should an inventory be completed?**
3. **Why is an inventory important?**
4. **Why is the timely turnover of merchandise important?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.

UNIT VII - SHOP OPERATIONS

Lesson 4: Taking Inventory

TEACHING PROCEDURES

A. Review

The previous lesson presented information on calculating the price for florist's shop products. This lesson will present information on inventories and the importance of maintaining an inventory.

B. Motivation

Show students a sample inventory list from a florist shop. Ask if they would know how to begin doing an inventory.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what is included in an inventory.

What information should be included in an inventory?

a) All florist supplies
b) Related products
c) Accessories
d) Gift items
e) Containers
f) Plant materials

2. Ask students how often an inventory should be taken.

How often should an inventory be completed?

A hard goods inventory needs to be taken once a year. It may also be taken every 6-8 weeks or especially prior to a major holiday. Some items need to be inventoried on a daily basis.

3. Ask students why it is important to take inventory.

Why is an inventory important?

a) Helps to make a profit by allowing the flower shop to keep merchandise in stock
b) Tax purposes
c) Insurance
d) Serves as a guide to decide which items are moving slowly, overstocked, or understocked; can help in determining the most profitable items a shop carries and money needs at various times of the year

4. Ask students what turnover is. Ask why it is important.

Why is the timely turnover of merchandise important?

a) Turnover - cycle of purchasing, selling, and restocking items held in inventory
b) Plant materials - must be turned over quickly to avoid losses due to perishability; should be bought frequently and in small quantities
c) Hardgoods - turned over every two to four months, depending on the type of item; avoid overbuying because of the costs associated with holding inventory in stock

F. Other Activities

1. Have students do an inventory of the supplies in the classroom.

2. Visit a local flower shop and view its inventory records.

G. Conclusion

Florists need to take inventory regularly in order to ensure that they have all the supplies and merchandise necessary to run a profitable business, as well as for tax and insurance reasons. Monitoring the turnover rate will help the florist to determine which items to stock.

H. Competency

Assist in completing an inventory.

I. Answers to Evaluation

1. d
2. b
3. b

UNIT VII - SHOP OPERATIONS

Lesson 4: Taking Inventory

Name ____________________

Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. What should be included on a flower shop inventory?

    a. All supplies
    b. Accessories
    c. Gift items
    d. All of the above

2. Hardgoods should be turned over every:

    a. Month.
    b. Two to four months.
    c. Four to eight months.
    d. Year.

3. Inventory is necessary for:

    a. Helping to make a profit by having merchandise in the warehouse and tax purposes.
    b. Insurance purposes and helping to make a profit by having merchandise on hand.
    c. The end-of-the-year records and is not necessary at other times.
    d. All of the above.

UNIT VII - SHOP OPERATIONS

Lesson 5: Creating a Display

Objective: The student will be able to create displays.

Study Questions

1. **What procedures are used in creating a display?**
2. **How are display areas maintained?**
3. **Why are displays important for merchandising?**
4. **What are the elements of a good display?**
5. **What safety factors should be considered when setting up a display?**
6. **What factors should be considered when stocking shelves and displaying merchandise?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
    a) AS 5.1: Florist Shop Display

UNIT VII - SHOP OPERATIONS

Lesson 5: Creating a Display

TEACHING PROCEDURES

A. Review

Lesson 4 presented information on taking inventory and the importance of maintaining inventory. This lesson will discuss creating a display. An attractive display in the window or the store is one of the best means by which a florist can promote products. It can also help create the atmosphere of each shop.

B. Motivation

See if students have recently noticed any displays by retail merchants. Ask what they liked and disliked about them.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students if they know how to go about setting up a display.

What procedures are used in creating a display?

- a) Select a theme. It should be a single idea, usually a holiday or a season.
- b) Choose the props and merchandise to be promoted.
- c) Do a rough sketch detailing how the display should be set up.
  - 1) Include a focal point, but avoid placing it directly in the middle of the display.
  - 2) Keep the background simple.
  - 3) Place shorter items in front and taller items in back.
- d) The next step is to actually set up or create the display.
  - 1) The merchandise and props should be clean and of good quality.
  - 2) Prepare the background and floor of the display.
  - 3) Gather other props and accessories to be used.
  - 4) Add other items that are related to the main theme.
  - 5) Price tags should be hidden unless the item priced is part of a special or sales promotion.

2. Ask students what needs to be done to keep a display area maintained.

How are display areas maintained?

- a) Check all live plants daily for watering needs.
- b) Remove any dead foliage or blooms.
- c) Keep floors, display areas, and display coolers clean and free of dust.
- d) Clean all windows, especially in the display cooler, daily.
- e) Maintain a comfortable temperature in the sales area.
- f) Replace all burned out light bulbs.
- g) Keep painted surfaces fresh and free of chips.

3. Ask students why displays are so important.

Why are displays important for merchandising?

Effective and attractive displays can help generate more sales. While customers are browsing or waiting to pick up orders, a well designed display can encourage them to purchase additional items. A good display should attract attention, entice interest, instill a desire to possess the product, and encourage its purchase.

4. Ask students what constitutes a good display.

What are the elements of a good display?

a) The display is pleasing to the eye.
b) It has an easily noticeable main theme that catches the eye.
c) A good display should be well lit.
d) The display must be clean.
e) Complementary colors are used.
f) The rules of color are followed.
    1) Very bright and contrasting colors are used sparingly.
    2) If very intense colors are used, the display area is kept small and contrasting colors are less bright.
    3) The colors selected complement the items displayed.
g) The display adheres to tips for designing a display.
    1) It arouses interest.
    2) Do not use too many items that will compete for attention.
    3) All props should tie in with the featured product.
    4) Never mix different styles.
    5) If creating a window display with an open back, make it attractive both inside and outside the shop.
    6) Keep lights on in the display window after the shop is closed.

5. Ask students if they know of any safety factors that should be considered when setting up displays.

What safety factors should be considered when setting up a display?

a) Add proper support for everything displayed.
b) Make sure all electrical equipment and lights are safe and are not fire hazards.
c) Use materials that are not flammable.
d) Do not block shop entrances or exits.
e) Try to avoid using sharp edges or corners.

6. Ask students what factors should be considered when stocking shelves and displaying merchandise.

What factors should be considered when stocking shelves and displaying merchandise?

a) When opening a case of merchandise, be careful not to damage anything inside.
b) Calculate the retail price.
c) Vacuum or dust everything before displaying it.
d) Price all merchandise before displaying it.
e) Place newer items behind the older merchandise.
f) Do not place anything too close to the end of a shelf.

g) Group similar products together.
h) Use labels that can be easily read.
i) Clean up and throw away boxes and other garbage.
j) Put away tools.

F. Other Activities

1. Have students design a window display.

2. Practice setting up small merchandise displays.

3. Set up a monthly calendar for displays in a flower shop. Indicate themes, colors, merchandise, and props that could be used.

4. Take a field trip to a mall, preferably one with a flower shop. Observe the displays. Have students record what they did and did not like about the displays.

G. Conclusion

A good display is necessary for the best promotion of a florist's products. The elements of design as well as neatness and cleanliness are important in setting up a good display.

H. Competency

Create displays.

I. Answers to Activity Sheet

Answers will vary.

J. Answers to Evaluation

1. d
2. c
3. b
4. b
5. d

UNIT VII - SHOP OPERATIONS

Name ______________________

Lesson 5: Creating a Display

Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following would be an appropriate theme for a florist shop window display?

   a. Valentine's Day
   b. Christmas
   c. Football season
   d. All of the above

2. Where should the focal point or main theme of the display NOT be placed?

   a. Slightly left of the display's center
   b. Two feet above the display's center
   c. Directly in the middle of the display
   d. It does not matter where the focal point of the display is.

3. Why is making a sketch important when designing a display?

   a. It is good to have a record of the display.
   b. The sketch helps in deciding how the final display will look.
   c. The sketch can be saved for future displays.
   d. It is really not important to make a sketch.

4. Which of the following is a safety factor in setting up displays?

   a. Keep the lights on in the display window after the shop is closed.
   b. Use materials that are not flammable.
   c. Replace all burned out light bulbs.
   d. Clean and dust the display areas.

5. Which of the following is NOT an element of a good display?

   a. Neatness and cleanliness
   b. Colorful
   c. Attracts attention
   d. Dimly lit

Florist Shop Display

Develop a plan for a florist shop display to include several arrangements for a particular season or holiday.

1. What is the theme of your display?

2. What props will be used?

3. What will be the color scheme of the display?

4. Where will the display be located?

5. Describe the finished display.

6. Plan the setting. What materials will be used for the background or floor coverings? What other items (stands, special lighting, drapery) are needed in creating the display?

7. On the back of this page, draw a sketch of the display. Use labels to indicate the size and shape of and distance between items.

UNIT VII - SHOP OPERATIONS

Lesson 6: Maintaining the Flower Shop

Objective: The student will be able to maintain the floral shop area.

Study Questions

1. **Why is it important to maintain the floral shop?**
2. **How is the display area maintained?**
3. **How is the design area maintained?**
4. **Why is it necessary to maintain a clean and efficient cooler?**
5. **How are plant waste materials disposed of?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.

UNIT VII - SHOP OPERATIONS

Lesson 6: Maintaining the Flower Shop

TEACHING PROCEDURES

A. Review

Information on creating displays was presented in Lesson 5. The importance of maintaining the display was also discussed. This lesson will focus on maintaining the flower shop. A customer's first impression when entering a flower shop is often the most lasting. The shop must therefore be neat and clean at all times.

B. Motivation

Ask students if they have ever entered a store where everything was messy and dirty. Did they feel like staying there and buying something?

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students why it is important to maintain the floral shop.

Why is it important to maintain the floral shop?

a) A clean and neat flower shop gives customers a favorable impression when they first enter the shop.
b) If the shop is clean and well maintained, it is a safer environment for customers and employees alike.

2. Ask students how the display area is maintained.

How is the display area maintained?

a) Keep floors clean.
b) Dust all display areas and the merchandise on display.
c) Keep all aisles clear.
d) Check all lights to make sure none are burned out.
e) Keep window displays clean.

3. Ask students how the design area is maintained.

How is the design area maintained?

Designers often throw stems and waste on the floor as they create arrangements. If this is allowed to build up, it can create a safety hazard, so the stems and waste should be removed periodically.

Dust and dirt in the design area should be kept at a minimum. Surplus items are usually stored in the design room, and some are difficult or impossible to clean once they have been soiled.

4. Ask students if they understand why it is necessary to maintain a clean and efficient cooler.

   Why is it necessary to maintain a clean and efficient cooler?

   The cooler often serves as the display cooler, too. Dead and decaying flowers and foliage generate ethylene gas, which causes the flowers stored there to begin early senescence, or aging.

5. Ask students how to dispose of plant wastes.

   How are plant waste materials disposed of?

   Some shops have a bin or hole in which to sweep plant wastes. Depending on the area, some municipalities require separation of flower and foliage waste from wire, paper, etc. Keeping two different containers to sort the waste may be necessary.

F. Other Activities

G. Conclusion

All areas of the flower shop, including the display and design areas and the coolers, must be maintained to make a positive impression on customers, to create a good work environment for employees, and for safety reasons.

H. Competency

Maintain the floral shop area.

I. Answers to Evaluation

1. b
2. d
3. c
4. d

UNIT VII - SHOP OPERATIONS

Name ______________________

Lesson 6: Maintaining the Flower Shop

Date ______________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Why is it necessary to keep debris off the design room floor?

   a. It looks sterile.
   b. It is a safety precaution.
   c. It is a city ordinance.
   d. It is unnecessary to keep debris off the floor.

2. To maintain the display area:

   a. Keep all merchandise dusted.
   b. Keep aisles clear.
   c. Clean floors.
   d. All of the above.

3. What gas can build up in the cooler if it is not kept clean?

   a. Carbon dioxide
   b. Chloride
   c. Ethylene
   d. Propane

4. Why is it important to maintain the floral shop?

   a. So the shop will pass a safety inspection
   b. So the designer knows where supplies are kept
   c. So the employees have work to keep them busy
   d. So the shop gives a favorable impression to customers

UNIT VII - SHOP OPERATIONS

Lesson 7: Advertising

Objective: The student will be able to prepare an advertisement.

Study Questions

1. **What methods are used for advertising?**
2. **What are the ingredients of an effective print ad?**
3. **How can advertising benefit the floral shop?**

References

1. *Floristry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1996, Unit VII.
2. Activity Sheet
    - a) AS 7.1: Preparing a Print Ad

UNIT VII - SHOP OPERATIONS

Lesson 7: Advertising

TEACHING PROCEDURES

A. Review

The importance of maintaining a safe and clean environment in the flower shop to make a favorable impression on customers was discussed in Lesson 6. This lesson will discuss how advertising affects customers. One of the most important decisions a florist must make is how to spend advertising money to obtain the best results.

B. Motivation

Have several forms of advertising on display. Ask students to discuss which ones they think are the most effective.

C. Assignment

D. Supervised Study

E. Discussion

1. Ask students what methods of advertising can be used.

What methods are used for advertising?

a) A happy customer - the very best form
b) Newspaper
c) Radio
d) Television
e) Shop itself
f) Store signs
g) Window displays
h) Delivery van with a sign on the side
i) Direct mailing
j) Telephone book yellow pages
k) Billboards
l) Calendars, pencils, etc.
m) Business cards
n) Open house
o) Community services, public relations

2. Ask students what goes into creating an effective print advertisement.

What are the ingredients of an effective ad?

a) Attracts attention
b) Sparks interest
c) Inspires customers to buy
d) Reads simply and easily
e) Uses the shop's name and logo

f) Uses a good design
g) Uses pictures that draw interest to the ad
h) Varies in print size

3. Ask students how advertising can benefit the floral shop.

   How can advertising benefit the floral shop?

   Advertising keeps the business in the public eye.

F. Other Activities

1. Prepare a television or radio ad. Have students read their ads to the class as a television or radio announcer would.

2. With a local newspaper, radio station, or school paper, sponsor a contest for creating the best advertisement for a flower shop.

3. Make a poster advertising an appropriate floral decoration for some holiday. Decide where the best place to hang the poster would be.

G. Conclusion

Every flower shop needs an advertising budget. The major decisions are how much to set aside for advertising and what method or methods would best represent the shop.

H. Competency

Prepare an advertisement.

I. Answers to Activity Sheet

Answers will vary.

J. Answers to Evaluation

1. c
2. a

UNIT VII - SHOP OPERATIONS Name ____________________

Lesson 7: Advertising Date ____________________

EVALUATION

Circle the letter that corresponds to the best answer.

1. Which of the following are considered a means of advertising?

   a. A sign on the side of the shop van
   b. An ad in the local paper
   c. The shop's signs
   d. All of the above

2. Which of the following are ingredients of an effective ad?

   a. It uses good design techniques and attracts attention.
   b. It uses good design techniques and a black and white color scheme.
   c. It inspires customers to buy and saves on overhead costs.
   d. It uses the shop's name and logo and promises that all customers will be satisfied.

Lesson 7: Advertising

Preparing a Print Ad

Develop a newspaper ad for a florist shop, including art and text, advertising its design(s) for a particular holiday.

1. What written information will be included in the ad? How will print size vary for the different information included (ie. What will the largest print be used for? How large will the shop's name be?)?

2. What art will be included in the ad?

3. What will the dimensions of the ad be?

4. In the space below or on the back of this sheet, sketch the layout of the ad.

PURCHASES - CUT FLOWERS

Supplier	Flower	Date Ordered	Grade	Color	Date Rec'd	Number Bought	Cost Price	Number Sold	Selling Price

PURCHASES - PLANTS

Supplier	Plant	Date Ordered	Pot Size	Color	Number Blooms	Date Rec'd	Number Bought	Cost Price	Number Sold	Selling Price

FINISHED DESIGNS

Kind of Design	Number Made	Number Sold	Price

Appendix B

Grounds for Gardening
A Horticultural Guide
Agricultural Guide
Published by the University of Missouri-Columbia Extension Division

Care of Flowering Potted Plants, Part I

R. R. Rothenberger
Department of Horticulture,
College of Agriculture

Chrysanthemums

Potted chrysanthemums are the most popular year-around flowering gift plant. They are available in a wide range of colors and forms. Although chrysanthemums normally flower in November, newly developed methods encourage flowering all seasons of the year. Potted mums last several weeks to a month when given proper care in the home.

Care of the new plant:

1. Place the plant in a window where it gets bright light but no direct sun.
2. Check each day to make sure that the soil is moist. Do not allow the plant to wilt, but do not keep the pot setting in water.
3. Keep the plant at temperatures between 60 and 65 degrees at night. Daytime temperatures may be 10 to 15 degrees higher.

Reblooming chrysanthemums

Chrysanthemum varieties used for flowering potted plants are not usually suitable for Missouri gardens. However, if there is a desire to keep the plant it may be rebloomed with proper attention.

Florists often pot several plants together. Separate these plants after flowering and repot them individually. Use a 5 to 6-inch pot. Keep these plants well watered and at temperatures close to 60 degrees. When new shoots appear, move them to full sun and give plenty of water.

In summer, sink the pots outside in a sunny area where they can be given good care. Apply a complete liquid fertilizer about every two weeks. Additional plants can be started by rooting cuttings from the new growth.

To develop large, bushy plants, pinch out the tip of each new shoot when it becomes about 5 inches long. Remove only the soft shoot tips. Do not pinch the plants after August 15.

Keep the plants outdoors as long as possible in fall. When light frost threatens, cover the plants or lift the pots and bring them indoors. They often can be returned outdoors during periods of mild fall weather. When cold, freezing temperatures persist, bring the plants indoors to stay. Place them in a sunny south window. Night temperatures around 60 degrees are ideal. Day temperatures of 70 to 75 degrees are best.

Chrysanthemums flower only in response to short day (long nights). Until the color shows in the buds, plants must be kept where they will not be exposed to any light at night from a light fixture. Even dim light for short periods can disrupt flowering. When the buds begin to open, light at night will no longer effect them.

Do not expect plants forced at home to be as perfect as those grown in a greenhouse. Greenhouse conditions are difficult to provide in the normal home.

Hardy garden mums also grow in pots. These are suitable for outdoor planting. Set them out in a sunny, well drained location in spring when the ground is warm. To keep these plants low and bushy, pinch out shoots when they are about 4 to 5 inches long. Discontinue pinching about mid-July.

Poinsettia

The red flowering poinsettia is by far the most popular flowering potted plant for the Christmas season. White, pink, and variegated white and pink are also available. Many new, long lasting varieties of poinsettias are now available. If properly cared for they may last a month or more after Christmas.

Care of the new plant:

1. Poinsettias use a lot of water. Check daily. Make sure soil remains moist, but do not allow water to remain beneath the pot in the saucer or wrapping. Too much water will cause the roots to rot, and the plant will deteriorate.

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2. Keep the plant out of drafts. Excessively hot, dry air from heating ducts will reduce the life of the plant. Also avoid cold drafts. Poinsettias are semi-tropical, and can not tolerate cold temperatures or rapid temperature changes.

3. Keep the plant where temperatures remain above 60 degrees. Temperatures between 65 and 70 degrees are ideal. It is not necessary to move poinsettias into a cool room at night.

4. Place the plant in good light, but not direct sun.

5. Do not allow the plant to wilt. Poinsettias are closely related to many desert plants. Their first response to dry conditions is to drop their leaves in order to cut down water loss.

Reblooming poinsettias:

Poinsettias are perhaps the most difficult flowering potted plants to rebloom in the home. Unless there is a special interest to try the technique, discard the plant after flowering.

After blooming, gradually withhold water. The leaves will then yellow and fall. Store the dried-off plant in a cool place with temperatures 50 to 60 degrees until spring. Water only enough to keep the roots from drying out.

In spring place the plant in a warm room, and prune the stems back to about 6 inches. If there is more than one plant in the pot, divide and repot them at this time.

For repotting use a well drained soil. House plant potting soils available at garden shops are satisfactory. Or use one part garden soil, one part peatmoss or leaf mold, and one part sand or perlite.

After repotting, place the plants in a bright sunny south window until frost danger is past. Sink the pot outdoors where it gets some wind protection, but where it gets sun most of the day. Light shade in the hottest part of the summer afternoon is desirable. Lift the pot occasionally to keep roots from growing into the surrounding soil.

As new shoots develop, cut them back to allow two nodes or pairs of leaves to remain. Do not pinch back shoots after mid-August.

Plants may be started from cuttings, but rooting is fairly difficult under home conditions.

Keep the plant in good growing condition by watering and feeding regularly during the summer. Add a complete liquid fertilizer about once every two weeks.

Watch carefully for insect or disease problems, and control immediately. Discard diseased plants.

Before the weather becomes cool in fall, bring the plant indoors and place it at a bright, sunny south window. Night temperatures for flower development should be between 60 and 62 degrees. At higher temperatures, flower development will be poor. Day temperatures may be 70 to 75 degrees.

The poinsettia is a short day (long night) plant. Make sure that it receives no additional light at night while flowers are forming. This critical period begins about October 1 and continues until colored bracts and flower buds are visible. Even short periods of dim light can prevent flowering. If the plant is kept in a lighted room, cover it *every* night at dusk with a light-tight bag or cover. Remove the cover at about 8 am each morning.

If these procedures are followed carefully, the plants should flower by midwinter.

Azaleas

The popularity of potted azaleas has increased rapidly since they have become available throughout the year. Several types are used for forcing, but the care of all of them in the home is similar.

Care of the new plant:

1. Although azaleas can tolerate normal room temperatures, they will last much longer in cool conditions. Place the plant in the coolest part of the house where temperatures remain from 60 to 65 degrees.

2. Keep the plant in a well lighted location, but avoid full sun while in bloom. Sun directly on the flowers will fade them and decrease their life. After flowering is finished the plant should be moved to a sunny window.

3. Never allow an azalea to dry out. Water the plant by submerging the pot in a bucket or pan of deep water. Remove it when bubbles stop rising. Allow excess water to drain out before returning the pot to the saucer. Never allow the plant to wilt.

4. Use a complete, soluble liquid fertilizer about once every two weeks if you plan to keep the plant after flowering is finished.

5. Keep faded flowers removed to prevent the development of disease problems and maintain a good appearance.

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Reblooming azaleas:

Reblooming azaleas in the home is not a simple matter. After flowering has finished, remove withered flowers and keep the plant in a cool, sunny location. Shift the plant to a larger pot if it appears to be potbound. Azaleas need shifting only once every few years. It is unlikely that a newly purchased plant will need immediate repotting.

A good mixture for repotting can be made from three parts acid peatmoss, and one part soil. With careful fertilization and watering azaleas can be grown in peatmoss alone.

Submerge the potted plants outdoors in May in a semi-shaded, protected spot. Don't neglect it during the summer. It will need water and fertilization regularly. Watch for insect pests.

If foliage becomes yellow or chlorotic, iron uptake may be limited. This can mean root loss from too much or too little water. It can also result from a pH that is too high (soil too alkaline), or it may actually be a lack of iron in the soil. Apply a chelated iron or iron sulphate to correct the situation. Ammonium sulphate fertilizer also helps to lower the pH and maintain the acidity of the soil. Apply about one half teaspoon *each* of iron sulphate and ammonium sulphate to one quart of water. Apply this to the plants about every two to three weeks. About every third fertilization use a complete houseplant fertilizer instead of the above combination.

Before July 1, shape the plant by removing the tips of rapidly growing shoots. Keep the plant outdoors as long as possible in the fall. Protect it on the first cool or light frost nights, but bring it indoors when hard frost is likely. Place the plant in a sunny, cool room. It needs 40 to 50 degree temperatures from November 1 to January 1. Do not fertilize during this period, and water only enough to keep the plant from wilting.

Buds should develop and swell. In January, move to a sunny window in a room where temperatures are near 60 degrees at night. In a few weeks flowering should begin. If temperatures are excessively high during this period buds often develop poorly and new shoot growth begins.

In warmer areas of the state some of the Kurume varieties may be planted outdoors. None of the Indica, or Belgian, hybrids are hardy here.

Hydrangea

The potted hydrangea is popular for Easter and Mother's Day. With good care it should last several weeks in the home.

Care of the new plant:

1. Water is the most important factor in caring for a potted hydrangea. The large foliage and flower clusters use large quantities of water. Never allow the plants to dry out. Check the soil several times a day. If you plan to be away for a day or two, cover the plant with a transparent plastic bag so that it will not lose water so fast. This should not be done frequently or it will weaken the plant and increase disease problems. Do not allow the pot to set in a pan of water for long periods of time. If the plant wilts severely, submerge the soil and pot in a pan of deep water, and allow it to remain until the soil ball is thoroughly wetted. Drain and replace.

2. Bright light will help to keep the plant in good condition. Place it near a sunny window, but not where it gets direct sun which will fade or burn the flowers.

3. Hydrangeas like cool temperatures. Move the plant to a cool room at night (50 to 60 degrees).

Reblooming the hydrangea:

Outdoors: In warmer areas of Missouri the potted hydrangea can be planted outdoors in a protected spot after flowering has finished and the weather has warmed up. After mild winters the plant may flower, but after severe winters it will often be killed back and will not bloom. Never prune hydrangea in late summer or fall. At that time flower buds are set, and pruning will remove buds that would produce flowers next year. Mulch the tops with straw or Styrofoam covers to protect from being killed during the winter.

Indoors: To rebloom the hydrangea indoors, cut the shoots back after the plant has finished flowering so that two nodes or pairs of leaves are left on each shoot. Repot in a mixture of equal parts of soil and peatmoss. If soil is very heavy, add coarse sand or perlite. Grow the plant in full sun or a south window.

In May move the plant outside and sink the pot where it gets full morning sun, but light shade during the afternoon. Water regularly, and fertilize with a complete liquid fertilizer about every two weeks. For extra large flower heads allow only about three stems to develop. When removing extra shoots, take out those that grow toward the center of the plant. Lift the pot occasionally to keep root growth from moving outside the pot.

To keep shoots from becoming too long pinch back shoots during the summer. The last pinch should not be made any later than July.

Keep the plant outdoors as long as possible in the fall, but bring it indoors before a hard freeze. Keep the leaves on until November 1, if possible. Then pick off all the leaves by hand or put the plant in total darkness until all leaves drop naturally. The leafless plant must then be kept at temperatures from 35 to 40 degrees for about six weeks. Keep the plant dry during this period.

After the cooling period bring the plant to a sunny, cool room, with night temperatures of 55 to 60 degrees. Water it

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well and fertilize about every two weeks. It should flower in about four months.

Color: The color of hydrangea can be controlled to some extent. Flowers are blue if grown in acid soil, and pink if the soil is near neutral. The color of white flowers can not be changed by this method.

For blue flowers, use a soil mix with liberal quantities of acid peat added. Water the plant three times at 10 day intervals in late summer with aluminum sulphate (seven teaspoons per quart of water). After the cool dormant treatment again add the aluminum sulphate solution about four more times at 10 day intervals. When fertilizing, do not use fertilizers that contain phosphorous.

To produce pink flowers, keep the soil more neutral (pH 6.5-7.0). If the soil is naturally acid, water with diluted lime water made with 2/3 teaspoon of hydrated lime in a quart of water. Use a complete fertilizer for regular fertilizations, and add one teaspoon of superphosphate to each pot. If leaves turn yellow (chlorotic) due to this treatment, use chelated iron or iron sulphate to correct the condition. Use 3/4 teaspoon of iron sulphate per quart of water.

Easter Lily

The Easter lily is a popular holiday plant that needs little special treatment. Well tended plants should bloom successively for several weeks in the home.

Care of the new plant:

1. Keep the plant moist, but be careful not to overwater. Check moisture daily, and be sure the pot *never* stands in water. Root rots can be easily brought on by overwatering.
2. Place the plant in a bright location, but avoid full sun.
3. Keep the plant in a cool place, and avoid drafts.
4. When a new flower opens, carefully remove the yellow anthers. This will prevent pollen from smudging the petals.
5. Cut off flowers as soon as they have collapsed.

Reblooming:

Outdoors: When all blossoms have faded, reduce watering so that the plant will gradually dry off. Cut off the stem a few inches above the soil after the top dries.

In May after danger of frost is past, plant the bulb in a protected place outdoors at a depth of 4 to 6 inches. Often the bulb will produce a few flowers again in late summer or early fall.

Easter lilies are not normally hardy in the Midwest, but may persist in the garden for several years if placed in a protected spot and covered with a mulch.

Indoors: The forcing procedures seriously weaken the lily bulb. It is not practical to repot them and bring them indoors to try forcing them the following winter.

Potted Bulbs

Spring flowering bulbs often forced into bloom in pots are tulip, hyacinth, narcissus (daffodil), grape hyacinth, and crocus. For maximum enjoyment these plants are best purchased in the bud or early stages of bloom.

Care of the new plant:

1. Place the plants in a cool spot where temperatures at night are about 60 degrees.
2. Do not place them in a sunny location. The warm temperatures in sunshine will speed flower development and shorten the life of the flowers.
3. Keep the plants moist, but not standing in water. Additional fertilization will not be necessary.

Reblooming:

Do not try to rebloom indoors bulbs that have been forced. They can, however, be moved into the garden and will often flower the next spring. Discard any bulbs that have been forced in water such as hyacinths or paperwhite narcissus.

When the bulbs have finished flowering indoors move the plant to a sunny location. Keep them wet enough so that leaves are able to mature and dry gradually. When the tops have died, remove the dry foliage and soil from around the bulbs. Store them in a dry place until fall, and then plant them outdoors in the garden.

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Grounds for Gardening
A Horticultural Guide
Agricultural Guide
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Care of Flowering Potted Plants—Part II

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This guide describes some of the most durable flowering plants for indoor decoration and pleasure: African violets, amaryllis, begonias, citrus plants, gardenias, and holiday cacti. Although some are not easy to grow, with proper care, these perennial plants are capable of living and blooming for many years.

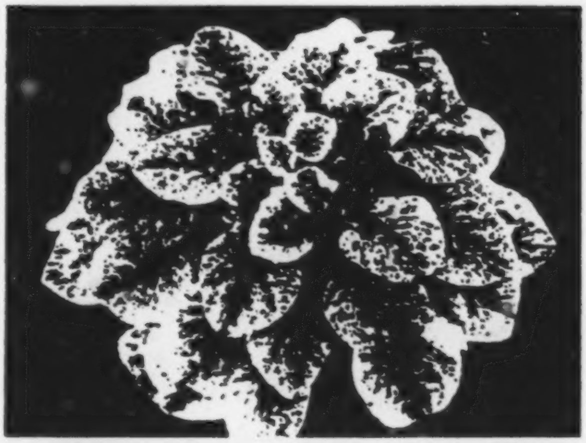
African Violet

Outstanding among small, flowering potted plants, African violets in a good location should flower without interruption for years. In addition to their free-blooming character, they are well adapted to home conditions, easy to propagate and available in a wide range of flower colors. Miniatures as well as more compact standard varieties are usable in limited space.

Care of the new plant:

1. Maintain night temperatures between 65 and 70 F; day temperatures 10 degrees warmer. Do not expose to temperatures below 60 or above 80 F.
2. Place in windows with bright light but no direct sunlight. Some midwinter sunlight is not harmful, but avoid it at other times of the year. If no suitable window space is available, plants grow well in fluorescent light. Place about 8 to 12 inches beneath cool white fluorescent tubes lit about 14 hours daily.
3. Water frequently enough to keep soil moist, but allow slight drying between waterings. Easily killed by excess soil moisture. Wick watering is adaptable.
4. Humidity is important. In homes with low humidity, place on trays of gravel containing water. Home humidifiers can help.

Reblooming African violets:



The African violet variety, Top Dollar, combines white and green variegated foliage with double blue flowers.

African violets rebloom easily in the home. If located properly and watered regularly, little need be done besides occasional fertilization. Use either special African violet fertilizers or a houseplant fertilizer high in phosphorus. A very dilute fertilizer solution at each watering keeps growth constant and eliminates any chances of over fertilization.

Pale green leaf color may indicate too much sunlight or low fertility. Do not use water softened by a system using salt in the process.

African violets seldom need pots larger than 4 inches in diameter. The danger of overwatering and development of root and crown rots increases if pots are too big.

Old plants sometimes develop long woody stems. The tips of these plants may be cut off and rooted to form new, more compact plants. However, plants developed from leaf cuttings are generally more vigorous and bloom more abundantly.

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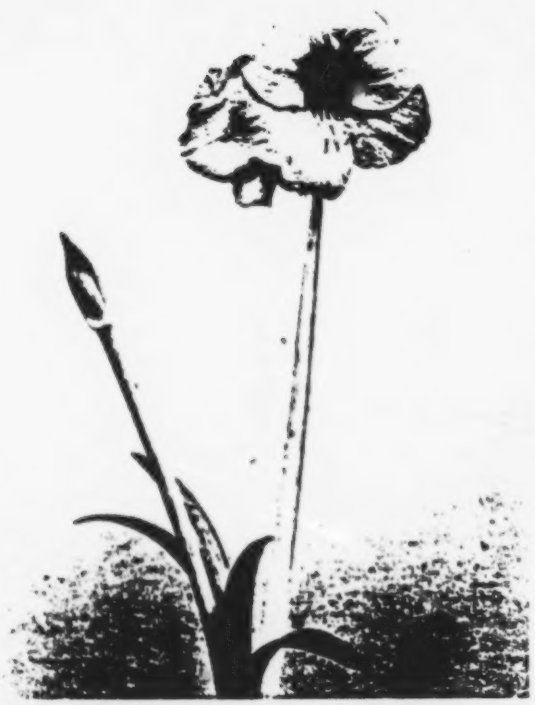

The large blooms of Amaryllis rise high above its bulb and young foliage.

Amaryllis

Amaryllis produce large, showy flowers before most of the foliage develops. Large bulbs produce two stems of flowers; smaller bulbs usually have only one. Bulbs ready for bloom or plants with bloom stalks started are available in early winter. With proper care these bulbs bloom yearly.

Care of the new plant:

1. When in bloom but before foliage develops, display in any desirable location indoors. However, as foliage develops, move plants to a bright window. Direct sunlight can shorten the life of the flowers, but after flowering is completed, give plants a bright, southern exposure with plenty of winter and spring sunlight.

2. To keep bloom stalks from excessive stretching and to increase duration of bloom, keep plants in a cool room at night. When this is not possible, stakes may be necessary to keep the bloom stalk upright.

3. Soil must be kept constantly moist while blooming. Drying will reduce flower life and cause the flower stalk to bend.

Reblooming amaryllis:

Despite its short flowering period, spectacular flowers rebloom easily in future years. Care is most important during spring and summer. After bloom is completed, remove blooms and stalks promptly so no seeds form. Do not damage or cut off any leaves. Place plants in direct sunlight. If the pot is small and the bulb large, transplanting may be necessary. The pot should be at least 2 inches larger in diameter than the bulb. Standard potting mixtures are quite satisfactory. When repotting, avoid as much root damage as possible. Repot before flowering but not after fully developed leaves are actively growing. The completion of flowering is the last time to replant.

Provide good soil drainage; never grow plants in pots without bottom drainage. Keep bulbs at temperatures between 60 and 70 F. After danger of frost is past, potted bulbs may be moved outdoors. If garden space is available, sink pots to the rim. Position in sufficient sunlight where they can be easily watered. Move gradually into a sunny location to reduce or avoid leaf burn. Keep plants actively growing during the summer. As danger of frost approaches, lift out pots containing the bulbs and store in a cool room (about 45 to 50 F at night). Withhold water until the foliage dies. Light is not necessary. Bulbs require a two to three month rest period before growth and flowering begin again.

Flower buds should appear several weeks after moving plants to a warm temperature, and watering is resumed. Bulbs, which had four or more healthy leaves throughout the summer, should be large enough to flower; those with less foliage may not flower. However, with proper care nonflowering bulbs can be redeveloped for blooming in future years.

Begonia

Although most begonias are popular houseplants because of their attractive foliage, a few varieties are well known for their spectacular blooms. Most noted for their flowers are the Rieger begonia, Christmas begonia, wax (semperflorens) begonia, and tuberous begonia. Although their needs vary, these plants are similar enough to be discussed as a group.

Care of the new plant:

1. Most develop best at a 60 F night temperature. Night temperatures exceeding 70 F reduce or inhibit flowering.

2. Flowering begonias need brighter light than most foliage begonias. Provide some direct sunlight during most of the year except in summer when bright light rather than direct sun is best.

3. Provide a uniform water supply. Root rots often develop after excessive watering. Use a houseplant fertilizer regularly according to the manufacturer's directions to keep plants vigorous and flowering.

Reblooming begonias:

Wax (semperflorens) begonias make good garden plants. Plant into the flower border in a lightly shaded location after all danger of frost is past. In fall, these same plants may be repotted to bring indoors if they have not become too large. If they were left in sunken pots, the operation is easy and less root damage results.

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Since plants may be too large after a full summer of growth, root cuttings during the summer to develop smaller plants.

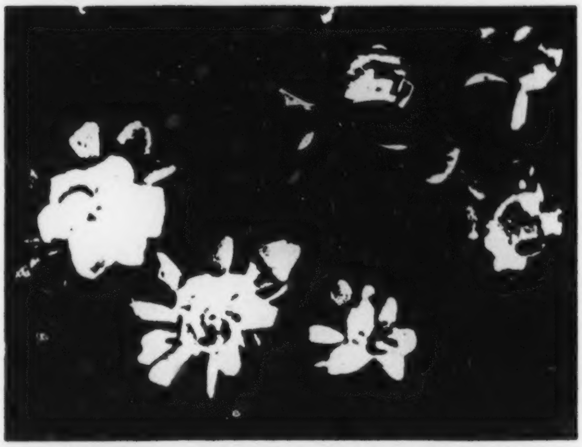
Rieger begonias do not rebloom easily, and unless kept in a very good environment, they are best discarded after flowering is completed. To try reblooming healthy plants, cut back the main, heavy shoots to about 3 inches from the plant base. Repot into a slightly larger pot, and set old soil ball ¼ to ½ inch above the new soil line. Keep soil slightly dry until wounds have healed and new growth begins. Then, resume normal watering and fertilization: the plant should begin to flower again in three to four months. Young plants may be started from leaf cuttings.

Move tuberous begonias outdoors into a moist, shaded location, preferably on the north side of a house or hedge, as soon as all danger of frost is past. Soil should be well drained and high in organic matter. Water frequently to keep plants actively growing during hot weather. In fall, dig up tubers, and keep in a warm, dry place until the tops die off. Remove the tops and store the tubers in dry peat moss at about 40 F. In March, or as young shoots begin to develop, plant indoors into pots of fresh, clean soil. Set the top of the tuber well above soil surface.

Citrus

Several citrus varieties grow well in containers indoors. The calamondin orange, a popular variety, produces small orange-like fruits. Plants may display both flowers and fruits at the same time. Flowers have the typical orange-blossom frangrance, but fruits are quite sour. Other dwarf citrus varieties suitable for indoor growing include the Ponderosa lemon, Meyer lemon, and Dwarf Tahiti orange. Although seeds from oranges, grapefruits and other citrus fruits purchased in the grocery store are fairly easy to sprout, they soon grow too large and seldom produce fruit in the home.

The calamondin orange produces many small, sour fruit.



The fragrant, waxy flower of the gardenia blooms amidst glossy, deep green leaves.

Care of the new plant:

1. Maintain night temperatures between 55 and 60 F: day temperatures 70 F or higher. Avoid temperatures below 55 F.
2. Allow soil surface to become dry to the touch before rewatering. Never allow standing water in the container or saucer. Always use containers with drainage and a soil that is loose and well drained.
3. Place in a sunny, south window.
4. Use fertilizers with an acid reaction such as those sold for use on azaleas, rhododendrons or gardenias to maintain the soil slightly acid. If foliage develops a very pale color between the veins, soil may not be acid enough, or root damage has occurred. Application of iron sulfate may correct this problem (see gardenia).

Reblooming citrus plants:

If well-placed and tended, plants should flower and fruit throughout the year. In summer, plants may be placed outdoors in light shade with some direct sunlight. However, make adjustments to outdoor conditions gradually to avoid leaf burn. If plants need repotting, shift during the early summer when growth is active.

Because even some dwarf varieties may become too large for home use, prune back severely during the spring. New shoots develop from older wood.

Loss of flowers or failure to produce fruit is usually caused by either poor light, high temperatures, incorrect watering or attacks by spider mites, scale, or other common houseplant pests.

Gardenia

The glossy, deep green foliage and fragrant waxy-white flowers of gardenia make it a beautiful plant but

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not an easy plant for home culture. Although sometimes available at other times, they are primarily potted plants used for the spring holidays.

Care of the new plant:

1. Plants prefer temperatures close to 60 F at night and 70 to 75 F during the day. Maintain fairly uniform temperatures within these ranges.

2. Maintain uniform soil moisture with good drainage. Fertilize with acid reaction fertilizers to keep soil slightly acid. If possible, use rain water, especially if tapwater is "hard" or alkaline. Never use softened water because of its high sodium content.

3. Place in sunny south or west windows.

Reblooming gardenias:

Unless located in a suitable environment, gardenias decline rapidly and should be discarded after flowering. Loss of flower buds is sometimes a problem with new plants. To help reduce bud drop, provide the best conditions possible. Misting over the plant while it becomes adjusted to a new location may help reduce bud drop.

When repotting is necessary, use a slightly acid soil mix high in peat moss. Repot in late spring after flowering is completed. If moved outside for the summer, they prefer a slightly shaded location. Most benefit from the addition of iron sulphate at three to four week intervals. Use ½ teaspoon to each quart of water. Soil acidity should be near pH 6.0 or slightly less. In early summer or at the time they are placed outdoors, prune back plants that have become too large.

Plants are subject to attack by common houseplant pests, including spider mites, scale and mealy bugs.

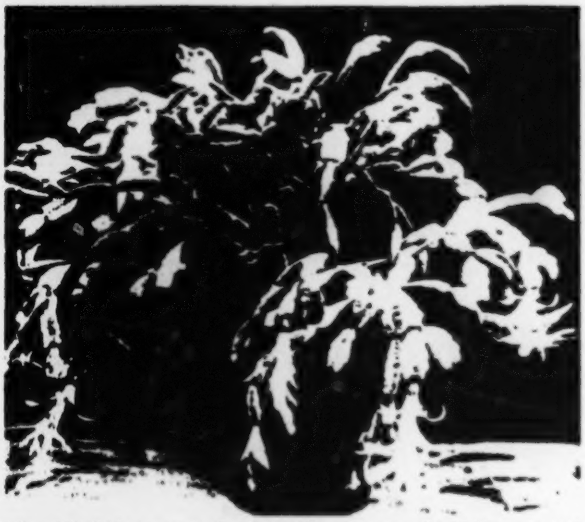
Holiday Cacti

Thanksgiving cactus, Christmas cactus and Easter cactus are three tropical cacti which naturally flower near each of these holidays. Recent development of vigorous new hybrids, which flower between Thanksgiving and Christmas and in different colors and shades, have increased their recent popularity. In general, holiday cacti bear the stem characteristics of the Thanksgiving cactus. The Thanksgiving cactus has stem segments with saw-toothed margins; the Christmas cactus has rounded margins. Easter cactus is more intermediate in shape but develops more small spines at the junctions of the stem joints.

Care of the new plant:

1. Cacti prefer a relatively cool night temperature between 55 and 60 F. Night temperatures above 70 F inhibit flowering and cause drop of existing buds.

2. Place in some direct sunshine. Poor light promotes bud drop and poor growth after flowering. In summer, place plants in bright light, but not direct sunlight.



The Christmas cactus produces pendant flowers at the tips of graceful stems.

3. Water thoroughly, but allow to become moderately dry between waterings. Excess moisture results in root rot, especially during flower bud development in the fall during slow vegetative growth.

Reblooming holiday cacti:

For flowering in future years, keep plants in a sunny window and fertilize regularly but lightly. Plants are epiphytic, that is, they grow in decaying organic matter rather than soil. When repotting, use sphagnum moss or a very loose mixture of organic materials. They do not need extremely large pots.

Keep in a bright window indoors during the summer, hang from branches of trees or set in other lightly shaded locations outdoors.

About mid-September, flower buds should begin to develop. Night temperatures of 55 F result in the development of flower buds. When cool night temperatures are not possible, induce flowering by giving plants short, preferably nine-hour days, from about mid-September to mid-October. Cover with a light-tight box every evening for 15 hours of complete darkness. Flowering occurs about two and a half months later.

Reduce watering and withhold fertilization during flower bud development and flowering stage.

Plants are relatively disease and pest free. However, overwatering or poor drainage of the potting medium may cause root root and result in collapse of roots. Plants root easily from stem segments. To start new plants, break off the healthy older branches and root the tops in fresh, clean sphagnum moss. Water sparingly until rooting occurs and new growth begins. Wilted segments, if not too badly damaged, will recover and become firm as new roots develop.

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Care of Flowering Potted Plants—Part III

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College of Agriculture

This guide discusses the care of calceolaria, Christmas pepper, cineraria, cyclamen, gloxinia, Jerusalem cherry and kalanchoe. These plants are either difficult to rebloom or have short life spans. Most of them should not be kept for reblooming. Unless you provide an ideal location, results are often inferior, or the plants become leggy with poor form.

Calceolaria

The oval, balloon-like flowers of calceolaria make its common name, "pocket-book plant" quite appropriate. It is usually available as a spring-flowering plant from about Valentine's Day through Easter.

Care of the new plant:

1. These plants thrive in cool temperatures. For the longest display, locate plant in a cool room or window where temperatures are near 50 to 55 F at night.
2. Locate in bright light, but avoid direct sunlight, which may fade flowers and reduce their life span.
3. Keep plants well watered at all times with slight drying between waterings. Overwatering easily damages their fine root system.

Care after flowering:

Calceolarias are annual plants grown from seeds. After flowering is completed, plants gradually decline and cannot be rebloomed successfully. Excessive heat or drying at any time makes them collapse quickly.

Pouch-like calceolaria flowers make a spectacular show above the leaves.

Christmas Pepper

Christmas peppers are suitable for indoor use at holiday time because of their bright red fruits. Although they are edible, most ornamental peppers taste very hot. Round or pointed fruits in different sizes and colors provide indoor variety.

Care of the new plant:

1. Plants last well under normal home temperatures. Keep them cool at night.
2. Keep moist at all times, never allowing them to wilt. Wilting results in leaf yellowing and dropping.
3. Plants need abundant light. Place them in a sunny, south-facing window.

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Care after flowering:

If plants are in good condition, take them outdoors after danger of frost. Outdoors, old leaves may drop, but new ones should develop quickly. Reshape plants if necessary by cutting back leggy stems. New blooms and fruit should develop by mid-summer.

If you are planning to bring the plant back indoors in the fall, repot into a slightly larger pot and sink it in the garden soil. Always locate potted plants where you can easily water them because they dry faster than those planted directly into the soil.

In the fall, several weeks before frost, lift pots. Digging and potting may cause some root damage, resulting in leaf drop until the plant reestablishes itself. With careful digging and potting, leaf drop should be minimal.

Ornamental peppers are easily grown from seeds. Seeds planted outdoors in late spring produce plants suitable for potting and bringing indoors in the fall.

Cineraria

Cineraria is a spectacular flowering plant for use on Easter and Mother's Day. Masses of daisy-like flowers in either red, pink, blue, violet or white rise above a nose-gay of large leaves. Cinerarias are seed propagated and grown at cool temperatures.

Cineraria produces a mass of closely packed, daisylike blooms.

Care of the new plant:

1. Plants last longest if kept at night temperatures between 45 and 50 F with daytime temperatures between 55 and 65 F.

2. Constant soil moisture is critical for maintaining long life. They wilt quickly and can be seriously damaged if soil becomes dry. Water thoroughly to keep soil moisture constant but not too wet.

3. Plants need good light but not direct sunlight, where higher temperatures may reduce flower durability. The heat, resulting in rapid soil drying, may also cause foliage wilting.

Care after flowering:

With good care, cinerarias should be attractive for several weeks. These plants are grown from seed and are best handled as an annual. Once flowering is completed, they naturally decline and should be discarded.

Cyclamen

Cyclamen is available from Christmas through the spring holidays. Leaves are heart-shaped, often with attractive grey-green mottlings. Flower petals reflex back from the centers and are held on long stems above the foliage. Colors are pink, salmon, red and white.

Care of the new plant:

1. Plants may flower for several months if kept at cool temperatures. Night temperatures close to 50 F are best; however, a range from 50 to 60 F is satisfactory. Day temperatures are less critical but should not run over 70 F if possible. High temperatures may cause young flower buds to abort.

2. During the winter, place plants where they get bright sunlight. At other times, place in bright light with little or no direct sunlight.

3. Never allow plants to wilt. Water from the side of the pot, so water does not get into the center of the "bulb." Keep soil moist with frequent watering, but do not allow water to stand in saucers beneath the pots.

Care after flowering:

Cyclamen is a perennial plant and may rebloom a second season. After flowering, gradually withhold water until the foliage dies off. This begins the rest period. Do not water for six to eight weeks.

By midsummer, begin watering gradually. Repot if the bulb-like corm is fairly large in the pot. When repotting, keep about half of the "bulb" above the soil line. At this time, a lightly shaded, cool spot outdoors, or a cool, shaded window indoors provides the best location. As new leaves develop, resume normal watering and fertilization and move plants to a sunny location. Keep soil moist at all times, and feed with a houseplant fertilizer according to manufacturer directions. Move plants indoors before danger of frost. Plants treated in this way should rebloom by midwinter.

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If young leaves become stunted or curled, a pest known as cyclamen mite may be present. While insecticides may combat this problem, infected plants are best discarded before the pest can spread to other plants.

Gloxinia

Care of the gloxinia is similar to that of the African violet, a close relative. Its large trumpet-shaped flowers rise above large, velvety leaves. Vivid colors include pink, red, white, blue and purple in solid colors as well as spotted or bordered with white. Gloxinias are most popular during the late winter and spring holidays.

Care of the new plant:

1. Plants need warm temperatures (65 to 70 F) at night along with fairly high humidity and good ventilation. Placing plants on a tray of moist gravel, or misting over new plants helps adjust them to home conditions.
2. Gloxinias need more light than African violets, so place them in a bright window just beyond the reach of direct sunlight. In late spring, direct sunlight may cause burning of foliage and reduce the life of the flowers. If stems begin to stretch, light is inadequate.
3. Keep soil uniformly moist. Plants can be damaged seriously if allowed to wilt. Small flower buds sometimes abort after plants are brought into the home. Either poor light, low humidity or excessive soil drying may lead to collapse of the young flower buds.

Bright flowers with sharply reflexed petals above heart-shaped leaves make cyclamen a unique potted plant.

Large, bell-shaped flowers and soft, hairy leaves are distinctive characteristics of gloxinia.

Care after flowering:

Plants produce a fleshy tuber, which with proper care, may be rebloomed. After the plant has stopped flowering, gradually taper off watering until the leaves yellow and die. Place pot and tuber in a cool, dark location, and stop watering. Give the tuber a rest period of eight to 10 weeks. As new growth appears, move the pot to a bright location and begin watering gradually. Tubers may be repotted at this time if necessary.

For spring bloom, do not water the tubers until after Christmas. Then, remove the tuber from the old soil, and plant shallowly into a new potting mixture. Place the top of the tuber above the soil line. Use only one tuber per pot. For starting plants, pots 4 or 5 inches in diameter are adequate. As shoots enlarge and leaves fully expand, begin normal watering and light fertilization. Plants should begin flowering in about four months.

Young plants may also be started from leaf or shoot cuttings. Techniques for starting plants from leaves are the same as for African violets.

Jerusalem Cherry

A close relative of the tomato, Jerusalem cherry produces abundant small, round, orange-red fruits. Although popular as a gift plant for the Christmas season, it is losing some popularity to Christmas peppers which give a similar ornamental effect.

Care of the new plant:

1. For longest durability, place plant in a cool location (50 F nights are ideal). Higher temperatures shorten the life of the plant, and leaves often drop.
2. Plants need a sunny location.
3. Keep the soil moist by watering as soon as the surface has dried slightly. Too much water promotes premature leaf drop.

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Care after flowering:

Jerusalem cherry may survive until spring in a good location. Although they may be refruited for another season, they are seldom worth the effort. After danger of frost in the spring, sink the pot into a flower bed for summer display. Trim back to reshape the plant.

Plants grow easily from the seeds in the berries. Develop plants for next season by planting the seeds in the early spring and growing them outdoors in the summer. Allow plants to set and develop fruit while still in the garden. After fruits are well set in the fall, lift the plants and place in pots for bringing indoors later. Grow plants in full sun in the summer, but after potting, move to a bright, shady spot before bringing indoors.

Kalanchoe

Recently, compact varieties of kalanchoes in a greater range of flower colors have been developed. As a Christmas plant, the red-flowered types have been popular, but pink, orange and yellow varieties are available for other times of the year. The kalanchoe has thick, waxy leaves. Flowers are small, four-petaled, in abundant clusters held well above the leaves.

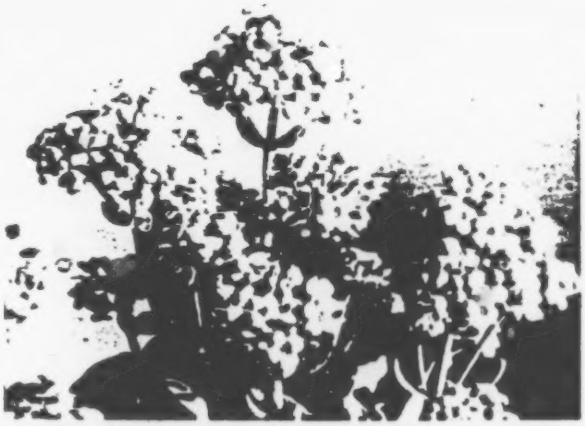
Care of the new plant:

1. Plants prefer a night temperature from 60 to 65 F. As with most houseplants, day temperature should be about 10 degrees higher.

2. Locate the plant in a sunny south or west exposure during the winter. In the summer any bright location with a few hours of direct sunlight will be satisfactory.

3. These plants can be damaged by overwatering. Allow soil to dry slightly between waterings. Fertilize with a common houseplant fertilizer at about monthly intervals.

The round, orange-red fruits and deep green foliage of the Jerusalem cherry are appropriate for the Christmas holidays.



Long-lasting clusters of four-petaled flowers rise above the waxy leaves of kalanchoe.

Care after flowering:

With good care, kalanchoes may be rebloomed for another season. After flowering, shift the plant to a slightly larger pot. Use a well-drained general purpose potting soil. Cut back tall growth and old flower stems. Keep well watered in a sunny, warm window. Indoors keep the plants in a sunny location, but after danger of frost, move them outdoors for the summer. Gradually adjust them to outdoor conditions, so tender leaves will not burn. Keep in a bright, lightly shaded spot. New plants may also be started from cuttings taken in the spring or early summer.

Kalanchoes, like poinsettias, require short day lengths for flower bud development. Natural day lengths between October 1 and March 1 allow flower buds to form. During this time, keep the plant in a room where lights are not turned on during the natural dark hours. About six weeks of natural winter day lengths are required for flower buds to appear. After the flower buds are large enough to be seen above the foliage, day length is no longer critical. At this time, place plants in any location regardless of night lighting. Plants exposed to natural short day lengths in early October should begin flowering by January.

Other Guides Related to Houseplant Care:

6510	"Caring for Houseplants"
6511	"Care of Flowering Potted Plants, Part I" (includes azalea, chrysanthemum, Easter lily, hydrangea, poinsettia and potted bulbs)
6512	"Care of Flowering Potted Plants, Part II" (includes African violet, amaryllis, begonia, citrus, gardenia and holiday cacti)
6515	"Lighting Indoor Houseplants"
6520	"Terrariums"
6550	"Spring Bulbs for Indoor Planting"
6560	"Home Propagation of Houseplants"
6570	"Starting Plants form Seeds"

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Grounds for Gardening

A Horticultural Guide

Agricultural Guide

Published by the University of Missouri-Columbia Extension Division

Caring for House Plants

R. R. Rothenberger
Department of Horticulture, College of Agriculture

To many people, a home is not complete without attractive potted plants. Proper care of house plants helps increase satisfaction and enjoyment from them and extends the blooming period of many flowering plants.

Most potted plants purchased from the florist have been grown in greenhouses under ideal conditions. When they are placed in home environments designed for people, not plants, they need good care to adjust to the new environment.

Watering

House plants are probably killed or injured more by improper watering than by any other single factor. No general time schedule can be used for watering all house plants. Size of plant, pot, light, temperature, humidity and other conditions influence the speed with which the soil mass dries out.

When to Water. Generally, flowering plants need more water than foliage plants of the same size. Never water any plant unless it needs it. Soil kept either too wet or too dry causes plant roots to die, which leads to poor growth or death of the plant. *Never* allow plants to wilt, and *never* allow them to stand in water for long periods of time.

Learn to gauge the moisture content of the soil by its color and feel. As the soil surface dries it becomes lighter. Under continued drying the soil begins to crack and pull away from the sides of the pot. When severe drying occurs some damage already will have been done to the roots.

Soil kept too moist becomes sticky and slimy, thus inviting root rots and other disease problems.

Kinds of Water. Ordinary tap or well water is usually satisfactory for plants. Chlorine and fluorine often added to city water do not harm plants. Rain water or melted snow are excellent. Water run through most water softeners, however, should not be used continuously for watering potted plants.

How to Water. Plants may be watered from either the top or the bottom of the pot. If you prefer watering from the top, use a watering can with a small spout and keep as much water off the foliage as possible. Each time, wet the entire soil mass, not just the top inch. Add water until it comes through the drainage hole in the bottom of the pot. Discard water that remains beneath the pot one hour after watering.

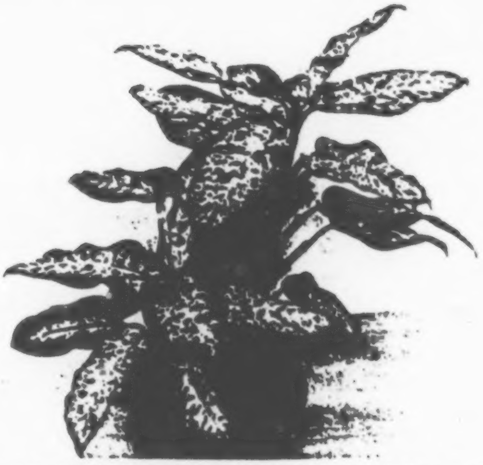

Figure 1. Dieffenbachia is one of many foliage plants adapted to conditions in the home.

Watering from the bottom insures thorough wetting of the soil mass. Place the pot in a pan or saucer filled with water, or dunk the pot in a bucket of deep water (just below the rim of the pot). When the top of the soil becomes moist, the entire soil ball should be wet. Remove the pot, allow it to drain and return it to the saucer.

Salts may form a white accumulation on the soil surface if plants are watered regularly from the bottom. Occasional watering from the top helps wash out the salts. Don't allow the soil to reabsorb any water that has been run through the soil to leach out salts. Surface salt accumulation may become too heavy to remove in this way. When this happens, scrape off the surface soil and replace it with fresh soil. Try not to injure plant roots.

Drainage. Potted plants should always have good drainage. Occasionally the drainage hole may become clogged by roots. Check it by pushing a finger, stick or pencil into it.

Even though drainage from the pot may be good, pot coverings may hold water. Pots wrapped in waterproof foil or placed in deep planters should be checked occasionally for standing water.

Plants with "wet feet" soon look sick—leaves yellow or drop; flowers collapse; and normally healthy white roots turn brown. Any or all of these can result from stagnation of the water, too little soil oxygen and development of diseases which rot the roots.

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Lighting

Improper light intensity ranks close to improper watering as a frequent cause for failure with house plants. A plant in proper light is better able to withstand the high temperature and low humidity of many homes. The amount of light necessary for good growth varies with different types of plants.

Flowering Plants. All flowering plants need moderately bright light. Plants kept continuously in poor light will have spindly shoots, few flowers, yellow foliage, poor flower color and often little or no growth.

South, east or west windows are excellent for most flowering potted plants, with the possible exception of African Violets and related plants which prefer a north window. Plants in bloom should be kept out of direct sunlight since the flowers will heat excessively and collapse more quickly.

Light in the average room, away from windows, is not bright enough for most flowering plants, even when ceiling fixtures are kept on.

Fluorescent lights located fairly close to house plants will improve growth when plants cannot be placed close to windows. When artificial lights are used, place them about 1 foot above the top of the plant, and keep them on for about 16 hours each day. Extra fertilizer, water or repotting are not cures for insufficient light.

Foliage Plants. Foliage plants are generally divided into those suitable for low light areas, moderate light areas and high light areas. Only a few plants can tolerate dimly lit room interiors. Light at a north window, daylight with no direct sun or sunlight diffused through a lightweight curtain are suitable for most foliage plants. Plants that require full sunlight should be put in a south window.

Abrupt change from a location in low light to one in bright light may be damaging. Plants can become acclimated to one location. Leaves gradually face toward light for maximum light absorption, especially in low light areas. Moving the plant disrupts this orientation, and light is not used as efficiently for a period of time. This is especially true of large plants.

Moving abruptly to more intense light also results in bleaching or burning of foliage, especially in direct sun. Any changes should be made gradually. Many plants can be kept from getting one-sided by turning them once a week.

Temperature

Proper temperatures for plants are often hard to find in the house. A hot, dry atmosphere shortens the life of flowers. Flowering potted plants should receive temperatures from 65 to 75 degrees in the day, and 55 to 60 degrees at night. To get the most out of flowering potted plants in the home, move them to a cool spot at night.

Foliage plants are more tolerant of high temperatures, but they thrive at temperatures between 65 and 70 degrees.

In winter, plants placed close to a window may have cooler temperatures than those elsewhere in the house. If the drapes are drawn behind these plants at night, the window temperature may be too cool. On cold nights, check temperatures close to windows. Some tropical foliage plants can be injured at temperatures below 40 degrees.

Do not put plants at windows that have hot air registers or radiators directly below them. Hot air blowing on the plants often causes leaves to brown on the edges and occasionally to drop or die.

Humidity

Air in most modern homes is extremely dry during the winter. A furnace or room humidifier can help plant growth. If one cannot be used, watertight trays placed beneath the plants and filled with constantly moist sand or gravel help increase humidity around the plants. Pots must be placed on, not in, the wet sand or gravel.

Misting over the leaves daily can help a plant overcome the stress of low humidity. Plants needing constant high humidity such as orchids or gardenias are best kept in kitchens or bathrooms where humidity often runs higher. A relative humidity between 40 and 60 percent is best for most plants, but is difficult to attain in the house.

Fertilizing

Newly purchased plants have been well fertilized in the greenhouse. They seldom need additional fertilizer for a few weeks. If plants are to be discarded after flowering, there will be no benefit from fertilizing. Plants to be kept on in the home should be put on a regular fertilization program.

When to Fertilize. Fertilizing once a month is usually adequate for most house plants that are producing new growth or flowers. During mid-winter (December, January) when no new growth is apparent, fertilizer should be withheld.

Do not use fertilizer to stimulate new growth on a plant located in poor growing conditions. Lack of growth is more often due to improper light or watering than to nutritional deficiencies. In such cases adding fertilizer may actually cause additional injury.

Drop of lower leaves, overall yellow-green color or weak growth may indicate a need for fertilization. Since these same symptoms may result from poor light or over-watering, evaluate all conditions before fertilizing more than normal.

Kind of Fertilizers. Water soluble, complete fertilizers have been formulated for house plants and are available from many garden shops, florists and nurseries. They are easy to use. Since formulations vary, be sure to follow directions carefully. Do not apply more than directed. The roots of potted plants are quite restricted and easily burned by the application of too much fertilizer at one time.

Never apply liquid fertilizers to wilted plants. Water the plants first, and apply fertilizer after the plants have recovered and the soil has dried slightly.

If soluble fertilizers such as 20-20-20 are available, these may also be used for fertilizing house plants. Make a solution by mixing 1½ teaspoons of this material in one gallon of water.

Some prefer to use organic fertilizers for house plants, but either organic, inorganic or a combination of both will be satisfactory sources of nutrients.

Fertilizers that release nutrients slowly or over a long time period require less frequent application than liquid forms. They are available in beads, pills, spikes and other forms. Never exceed amounts suggested by the manufacturer's directions.

Repotting

Plants just brought home from the greenhouse seldom need immediate repotting. Many will not require potting for some time. A newly acquired plant must make adjustments to its new environment, and repotting immediately puts added strain on the plant.

When a plant is pot bound (roots are too extensive for the

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pot) it may require too frequent watering and makes poor growth. This is a time for repotting.

A good potting mixture for many plants is made up of equal quantities of good garden soil, peatmoss or leaf mold, and sand or perlite. In very heavy soils more peat and sand should be used.

Acid-loving plants such as azaleas and gardenias should have at least 50 percent peatmoss or other organic material in the soil mix. With good care these plants can be grown successfully in peatmoss with no soil added.

Sterilize soil mixes before using them to avoid contamination by insects, diseases and weed seeds. In one method, moist soil is heated in a 200 degree oven for about 30 minutes or until it is heated through. Cover the container or wrap soil in aluminum foil to keep it from drying out while being heated. Chemicals can also be purchased for soil sterilization.

When repotting, avoid excessive damage to the root system. Firm the soil gently around the root ball, but do not press so hard that the soil becomes compacted (Fig. 2).

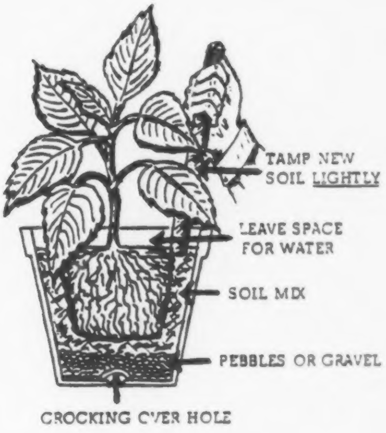

Figure 2. Repotting a house plant.
Sketch by Barbara Long

Allow enough space at the top of the pot so water can be added easily. Water newly potted plants thoroughly, drain and do not water again until necessary.

Insects and Diseases

Watch new plants carefully for development of insect or disease problems. If detected early, these problems often can be corrected easily before serious damage is done. If ignored or unseen, they may become difficult to control.

Summer Care

During the summer many house plants can be revitalized if placed outdoors. Do not rush the plants outside too early in the spring. Late May is usually soon enough. Cool nights may injure some of them.

Move the plants to a sheltered spot on a porch, beneath a tree or behind shrubs close to the house on a mild day, preferably when the weather is cloudy. After about one week of this adjustment, they may be moved to a more exposed but sheltered spot for the rest of the summer.

Plants with large leaves should be placed where they get good wind protection, since their leaves are easily torn.

Potted plants dry rapidly outdoors. Frequency of watering can be reduced by submerging the pots in soil. This also keeps pots from falling over. Lift the pots occasionally to keep roots from growing out of the drainage hole in the pot and to prevent the plant from becoming established outdoors. Fertilize monthly, and check occasionally for insects or diseases that may attack them outdoors. Move them indoors by mid-September before cool weather returns.

Durable house plants

Although all house plants grow best with good care, there are a few that stand abuse more than others. Some of the most durable house plants are snake plant (Sansevieria), heart-leaf philodendron (Philodendron cordatum), devil's ivy (Pothos), corn plant (Dracaena massangeana), Peperomia (Peperomia obtusifolia), cast iron plant (Aspidistra), dwarf palm (Collinea), Chinese evergreen (Aglaonema) and spider plant (Chlorophytum).

Diagnosing Cultural Problems

Problems resulting from poor growing conditions in the home are difficult to diagnose. Often poor growth may result from a combination of several unfavorable factors. Below are some possible symptoms that might appear. Following the symptoms are some causes that may have led to the problem.

1. Lower leaves turn yellow and drop when touched
   (a) Usually caused by overwatering
   (b) May occur when a new plant is moved from greenhouse to a low light, low humidity environment
2. Yellowing and dropping of leaves at various levels on a plant
   (a) Overwatering
   (b) Poor drainage
   (c) Tight soil
   (d) Chilling
   (e) Gas fumes
3. Tips or margins of leaves appear burned, brown or both
   (a) Too much fertilizer
   (b) Plant to dry for a short period of time
   (c) Plant exposed to too low temperature for short period
   (d) Use of softened water
4. New leaves of plant are small
   (a) Soil too dry for long periods
   (b) Poorly drained soil
   (c) Tight soil mixture
5. New leaves with long internodes
   (a) Not enough light
   (b) Temperature too high
6. Leaves yellow or light green, weak growth
   (a) Too much light
   (b) Poor root system—possibly from poor drainage, overwatering or tight soil

Description of Terms

Night Temperature—May fluctuate several degrees above or below listing. Day temperature should be 10 to 15 degrees higher.

No direct sun—Low light intensity suitable. Direct sun may bleach or burn foliage.

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Cultural Preferences of Plants Often Grown in the Home

Common Name	Night Temp.	Light	Moisture	Soil
African violet, Saintpaulia	65	Filtered	Evenly moist	Humus
Amaryllis	55	Bright	Evenly moist	Loam
Arrowhead, Nephthytis, Syngonium	65	Filtered	Evenly moist	Loam
Asparagus fern, Plumosus	50	Filtered	Evenly moist	Loam
Australian Tree Fern	65	Filtered	Thoroughly wet	Humus
Azalea	50	Bright	Evenly moist	Humus
Begonia (many types)	65	Filtered	Evenly moist	Humus
Bird of Paradise, Streletzia	50	Bright	Drench, then dry	Loam
Bougainvillea	65	Bright	Drench, then dry	Loam
Bulbs (Forced - tulip, hyacinth, etc.)	50	Bright	Drench, then dry	Loam
Burn plant, Aloe	55	Bright	Drench, then dry	Loam
Cactus (desert types)	65	Bright	Drench, then dry	Sandy Loam
Calceolaria, Pocket-book-plant	50	Filtered	Drench, then dry	Humus
Cast Iron Plant, Aspidistra	50	No direct sun	Evenly moist	Loam
Chinese Evergreen, Aglaonema	65	No direct sun	Evenly moist	Loam
Christmas Cactus	65	Filtered	Evenly moist	Humus
Christmas Pepper	65	Bright	Evenly moist	Loam
Chrysanthemum	55	Bright	Evenly moist	Loam
Coleus	65	Bright	Evenly moist	Loam
Croton	65	Bright	Evenly moist	Loam
Cyclamen	50	Filtered	Evenly moist	Humus
Dieffenbachia, Dumb cane	65	Filtered	Drench, then dry	Loam
Dracaena, Corn plant, Ti plant (related types)	65	Filtered	Thoroughly wet	Loam
Dwarf Orange, other Citrus	55	Bright	Drench, then dry	Loam
Easter Lily	50	Filtered	Drench, then dry	Loam
English Ivy, Hedera	50	Bright	Evenly moist	Loam
Episcia, Flame flower	65	Filtered	Evenly moist	Humus
Ferns (many types)	55	Filtered	Evenly moist	Loam
Freesia	50	Bright	Drench, then dry	Loam
Fuschia, Lady's eardrops	55	No direct sun	Evenly moist	Loam
Gardenia	65	Bright	Evenly moist	Humus
Geranium	50	Bright	Drench, then dry	Loam
German Ivy	60	Filtered to bright	Drench, then dry	Loam
Gloxinia	65	Filtered	Evenly moist	Humus
Hibiscus	65	Bright	Evenly moist	Loam
Hydrangea	55	Bright	Thoroughly wet	Loam
Impatiens, Sultana	55	Bright	Evenly moist	Humus
Jade plant, Crassula	65	Bright	Drench, then dry	Loam
Kalanchoe	55	Bright	Drench, then dry	Loam
Lantana	55	Bright	Drench, then dry	Loam
Maindenhair Fern, Adiantum	65	No direct sun	Thoroughly wet	Humus
Moses-in-the-Cradle, Rhoeo	55	Filtered	Evenly moist	Loam
Norfolk Island Pine	55	Filtered	Evenly moist	Humus
Orchid (Cattleya types)	55	Filtered	Drench, then dry	Orchid mix
Palms	65	No direct sun	Evenly moist	Loam
Peperomia, Pepper face	65	Filtered	Drench, then dry	Loam
Philodendron (many types)	65	Filtered	Evenly moist	Humus
Poinsettia	65	Bright	Drench, then dry	Loam
Pothos, Devil's Ivy	65	Filtered	Drench, then dry	Humus
Rose, potted	60	Bright	Drench, then dry	Loam
Rubber plant, Ficus	65	Filtered	Evenly moist	Loam
Sago palm, Cycad	55	Filtered	Drench, then dry	Loam
Schefflera, Umbrella tree	65	Bright	Drench, then dry	Loam
Sedums	55	Bright	Drench, then dry	Loam
Shrimp plant	55	Bright	Drench, then dry	Loam
Silver dollar tree, Eucalyptus	50	Bright	Evenly moist	Loam
Snake plant, Sansevieria	65	Filtered to bright	Drench, then dry	Loam
Spider plant, Chlorophytum	50	Filtered	Evenly moist	Loam
Thanksgiving cactus	65	Filtered	Evenly moist	Humus
Velvet plant, Gynura	65	Bright	Evenly moist	Loam
Venus Fly Trap	50	Bright	Thoroughly wet	Sphagnum moss
Walking Iris, Neomarica	55	Filtered	Thoroughly wet	Loam
Wax plant, Hoya	65	Filtered	Drench, then dry	Loam
Wandering Jew, Tradescantia	55	Filtered	Evenly moist	Loam
Zebra Plant, Aphelandra	65	Filtered	Evenly moist	Humus

Filtered light—Needs good light, but protection from long periods of bright sunlight.

Bright light—Suitable for south window exposure close to or in direct sunlight.

Thoroughly wet—Daily watering generally required. May stand in water for brief periods.

Evenly moist—Frequent watering required, but must never stand in water. Soil surface should always feel moist.

Drench, then dry—Soak root ball thoroughly, then allow the soil to become fairly dry before watering again. Do not allow the plant to wilt, however.

Loam—a good garden soil, approximately 1/3 soil, 1/3 organic matter and 1/3 sand.

Humus—Soil high in organic matter. Garden soil should have at least 50 percent peat moss or other organic material added.

Osmunda or orchid mix—best obtained from an orchid specialist.

Sphagnum moss—an undecomposed moss of bog areas used mainly for growing bog type plants.

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Leonard C. Douglas, Acting Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.

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Appendix D

Grounds for Gardening
A Horticultural Guide
Agricultural Guide
Published by the University of Missouri-Columbia Extension Division

Lighting Indoor Houseplants

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Department of Horticulture
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Houseplants are extremely popular indoor decorations. Attractive and constantly changing, they add a softness of line and provide a bit of nature indoors. However, the ideal location of a plant for decoration may not be the ideal spot for plant growth. Lack of adequate light is the most common factor limiting the growth of plants in many areas of the home. Supplementary electric lighting is usually the easiest and least expensive way to provide enough light for plants that do not receive adequate natural light.

Why Do Plants Need Light?

Light produces the energy plants need to make the food required for them to grow and flower. Plants are the only organisms able to use light to produce sugars, starches, and other substances needed by them as well as by other living organisms.

Is Light Color Important to Plants?

Yes, certain colors in light rays are important for proper plant growth. Leaves reflect and derive little energy from many of the yellow and green rays of the visible spectrum. Yet the red and blue parts of the light spectrum are the most important energy sources for plants, and plants require more rays from the red range than from the blue.

What Are the Best Sources of These Colors?

Plants growing outdoors, in greenhouses, or close to windows are exposed to a natural balance of the blue and red light rays that plants need. Where plants receive little or no natural light, you must provide additional light from man-made sources.

What Types of Lights Are Best?

Most people are familiar with the incandescent light produced by ordinary light bulbs in our homes. As a single light source for plants, these bulbs are not particularly good. They are a good source of red rays but a poor source of blue. They produce too much heat for most plants and, if used, must be kept away from the plants, thus reducing the intensity of the light the plants receive. They are also about three times less efficient than fluorescent tubes in converting electrical energy to light. Furthermore, a standard incandescent bulb's life is often only about 1,000 hours, whereas a fluorescent tube's life is normally 10,000 hours or more.

Fluorescent tubes provide the best man-made light sources available for plants in the home. Other light sources such as sodium lamps may be used but are not normally available or adaptable for home use.

Fluorescent tubes are made in many sizes and shapes: circular, U-shaped, square, or straight. Straight tubes in two-, four-, or eight-foot lengths are used most frequently.

What Is the Best Balance of Artificial Light?

Many indoor gardeners use cool white fluorescent tubes. Warm white fluorescent tubes also seem fairly effective, but fluorescent tubes listed as white or daylight are less desirable for indoor plant growth. Cool white tubes produce a small amount of red rays in addition to orange, yellow-green, and blue rays. However, the red light produced usually is not enough for many plants unless windows or other artificial lights produce additional red rays.

A few incandescent bulbs in the growing area can furnish needed red rays. A general ratio of incandescent to fluorescent light is about 3 to 10, so for every 100 watts of fluorescent light, you should provide about 30 watts of incandescent light for a better red to blue light balance.

Special fluorescent tubes also have been developed for growing plants. These have a higher output in the red range to balance the blue output. Many home gardeners have found that these tubes can be used in combination with cool white tubes. Use one special plant-growing tube to each one or two cool white tubes. This method is more economical than using all special tubes since cool white tubes cost less than the special plant-growing tubes. Also, fluorescent plant-growing tubes use less electricity and produce less heat than incandescent bulbs, and you will not have to provide fixtures for both incandescent bulbs and fluorescent tubes.

May I Use Spotlights and Other Special Bulbs?

Yes, although they are less effective than fluorescent lights and the combinations described previously. However, fluorescent fixtures may not be suitable for some locations. Reserve these special light sources for situations where supplementary light is essential.

How Much Light Should Plants Receive?

The amount of light necessary varies with each plant. Generally, the light fixtures available for home plant lighting make it practically impossible to produce too much light for most plants.

Plants usually are divided into three general categories: those suitable for *low*, *medium*, and *high* light intensities. (These three groups are referred to in discussions of different plants in the last section of this guide.) The categories generally indicate the minimum light required but should be used only as a guide. Growth is often best in the higher rate of these suggested light ranges.

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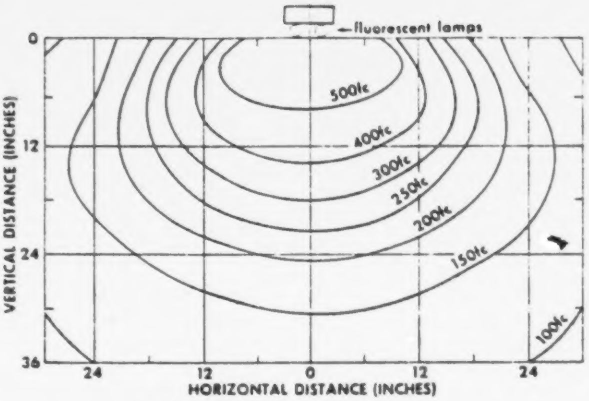

Figure 1. This graph shows the light output in footcandles from two standard 40-watt fluorescent lamps measured at distances from 6 to 36 inches. (From USDA bulletin DNG 187, Indoor Gardens with Controlled Lighting.)

Low Light Plants. Plants referred to as low light intensity plants generally should receive between 50 and 250 footcandles. (A footcandle is the measurement of the light received by a flat surface one foot from the point of emission of one international candle.) Under artificial light, a few plants in this group can be maintained at as little as 10 footcandles.

One way you can estimate the amount of light available is to calculate the number of watts available per square foot of plant area. Low light plants should receive between 10 and 15 watts of artificial light per square foot of growing space. A single fluorescent tube, such as a two-foot 20-watt tube or a four-foot 40-watt tube, without any other light provides only enough light for plants in this category.

Medium Light Plants. These plants prefer 250 to 3,000 footcandles. Best growth occurs above 1,000 footcandles unless plants also receive extended periods of direct sunlight. Give them artificial light in the 500 to 1,000 footcandle range or 15 or more watts per square foot of growing area.

While plants in this group can be held in the 250 to 500 footcandle range, growth is best with more light. A fixture containing two fluorescent tubes is sufficient for plants in the low to medium light range. Adjustments in the number of tubes used may be made if you regulate the distance between the tubes and plants.

High Light Plants. These plants generally are not satisfactory for growing under artificial lights in the home. However, if you want to try, use special high intensity lamps. These plants need at least 2,000 footcandles or 20 watts per square foot of growing area but should have higher intensities for best growth and flowering. Fixtures containing three to four fluorescent tubes are necessary for plants requiring high light.

How Far From the Light Should I Place Plants?

Most plants should be located with the tips of the plants 6 to 12 inches from the light source. The intensity of light drops rapidly as the distance from the light bulbs or tubes increases. Figure 1 shows this reduction of light intensity with distance below and to the side of tubes. Fluorescent tubes also do not produce as much light at the ends as they do in the center. Therefore, the brightest spot under a fluorescent fixture is directly beneath the center of the tubes.

The light fixture's position should be adjustable so you can keep the distance between the light and the plant fairly constant. Fluorescent shop or workroom fixtures often are hung on chains with s-hooks for easy adjustment. These fixtures are easily raised or lowered from link to link. If the fixture is not movable, you may make some adjustment by raising plants on stands, shelves, or boxes.

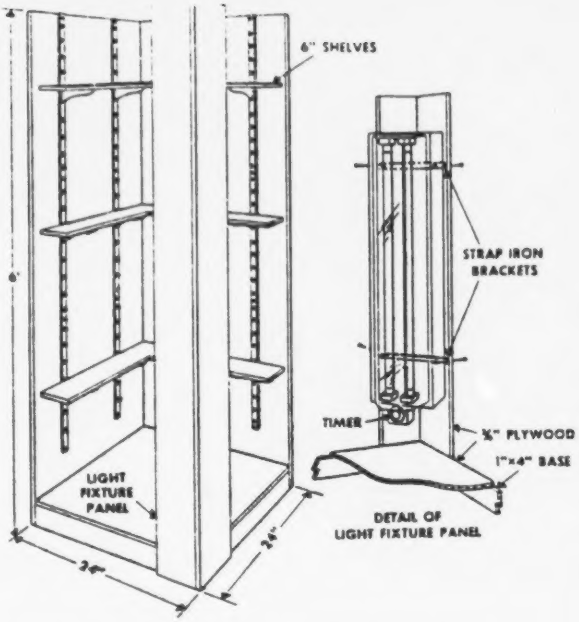

Figure 2. Tall garden starts and grows small pot plants.

How Long Should I Use Lights?

In most cases, plants receiving no outdoor light should be lighted from 16 to 18 hours each day. If some additional light is received, 12 to 14 hours each day may be adequate. Lights should be used at the same time that plants receive window light. Using lights at the beginning or end of the day will not usually be as effective as using lights during daylight unless natural daylight is quite bright.

How Can I Get the Most From Artificial Light?

Reflectors and reflective surfaces can maximize the available light. Bulbs with self-contained reflectors are helpful.

Porcelain-coated reflectors are excellent and require little maintenance. Keep reflectors clean and free of rust or any coating that reduces their effectiveness. White paint or aluminum foil beneath or around the growing area helps reflect light and makes it more efficient.

Space plants far enough apart to allow light between them. Arrange plants so they do not shade each other. Keep tubes clean and replace old tubes promptly.

How Should I Light the Bottom of a Tall Plant?

You may want to supplement light placed above the plant with spotlights around the base of the plant and directed on the lower leaves. Also, you can use fluorescent tubes in a vertical position to provide side lighting from the top to bottom of the plant. See Figure 2. This vertical position also can be used for smaller plants arranged on shelves.

Do I Really Need to Measure Light?

The eye is a poor judge of light intensity since it automatically adjusts to different light intensities. Light measurements

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are helpful in setting up a plant growing area but should be used only as a guide rather than as a rigid rate.

Light meters that measure footcandles may be used if available. Photographic light meters normally do not read in footcandles, but some manufacturers supply a conversion table. When available, these may also be used.

The use of wattage per square foot of growing area is a useful and easy way to estimate light required. With this approach, light measurements are unnecessary unless problems develop.

How Can I Tell Whether There Is Enough Light?

The growth pattern of the plant can be a good indication. No growth may indicate poor light but could be a sign of other problems as well. A healthy plant under poor light may develop long internodes (length of stem between leaves). Leaves may develop smaller than normal on some plants. Color of many plants in poor light may be pale green, and lower leaves may yellow and drop.

What Window Produces the Best Natural Light?

Consider size, direction, overhang, and shade from trees or buildings. Large windows provide the best growing conditions and allow plants to be placed fairly far back into a room. But even low light plants usually do not receive enough light at distances greater than 10 feet from an average window. The best windows for plants are those not shaded by a large overhang, trees, or structures outside them.

Windows facing south provide the brightest light conditions for the longest duration. In winter any houseplant benefits from the light of a south window. However, plants that do not need bright light may be sunburned by the bright light at south windows in late spring, summer, or early fall. Place plants requiring less light, such as African violets, at a north window or to the side or interior of a large south window during these times. South windows are most appropriate for plants requiring bright light and some direct sunlight.

East and west windows are well suited to many plants in the medium light range, while north windows are satisfactory only for plants requiring the lower light levels. These plants should not receive direct sunlight.

Can Lights Keep Plants From Blooming?

Some plants, generally known as short day plants, can be kept from flowering under the light durations normally used for artificial lighting. Best known in this category are the poinsettia and chrysanthemum. To induce flowering indoors, give these plants only about 10 hours of light each day until flowers become visible and color shows.

Will Artificial Lights Start Seeds?

Vegetable, annual flower, and some perennial flower seeds may be started successfully indoors under lights for later planting into the garden. For stocky growth, keep seedlings within a few inches of the tubes as soon as germination begins.

Proper growing techniques are essential. Details for starting seeds indoors are available in the UMC Grounds for Gardening Guide 6570, *Starting Plants from Seeds*.

Is a Light Timer Necessary?

A timer is a valuable asset since lights should be turned on and off regularly and consistently. Twenty-four hour timers available from electrical supply houses are adequate. The electrical cord from the timer should be the three-prong type, or you should use a grounded adapter. The use of water around plants makes grounding electrical fixtures important.

Plants for Indoor Lighting

African Violet, *Saintpaulia* species. This is one of the most satisfactory flowering plants for growing under lights: it grows and flowers well between 500 and 1,000 footcandles. Light 16 to 18 hours each day.

Aluminum Plant, *Pilea cadierei*. This small plant with colorful leaves tolerates a low light level but needs high humidity. Other suitable related plants include artillery fern and moon-valley pilea.

Arrowhead Vine, *Syngonium podophyllum*. These small plants are bushy and later, creeping or climbing. They may be kept at a low light level, but they are denser at a medium level.

Asparagus Ferns, *Asparagus densiflorus 'Sprengeri'* and *Asparagus setaceus* (formerly *plumosus*). These durable potted plants with fleshy roots produce fern-like leaves. Although tolerant of low light, the plants grow more abundantly and densely in a medium light range.

Aucuba-Leaf Croton, *Codiaeum 'Aucubaefolium.'* Crotons are not appropriate for the light garden as they require high light for good color development and growth. However, this smaller type with yellow spots can be grown at medium light intensities.

Begonias: Angelwing, *B. coccinea;* Beefsteak, *B. xerythrophylla;* Iron cross, *B. masoniana;* Flowering, *B. semperflorens;* and Painted *B. rex* varieties. Most plants of this family are suitable for growing in the medium light range. Begonias like high humidity and constantly moist soil. Give them a long light duration from 14 to 18 hours each day.

Cacti and Succulents. Many plants may be grouped in this general category. These plants need high light intensities; most are not satisfactory for growing under artificial lights. However, you can use lights to maintain them for limited periods when they cannot be exposed to bright light or direct sunlight. When artificial lights are used, provide high intensities and keep plants close to the source.

Cast Iron Plant, *Aspidistra elatior*. This plant tolerates cool locations and poor light; it is one of the best plants where only low light conditions exist. A variegated form is also available.

Chinese Evergreen, *Aglaonema modestum*. Aglaonemas are relatively small tropical plants but can tolerate light as low as 10 footcandles. Other species with different leaf form and variegation are also available.

***Cissus* Species:** Grape ivy, *Cissus rhombifolia* and Kangaroo vine, *Cissus antarctica*. Cissus are climbing plants that prefer medium light conditions for best growth, although kangaroo vine tolerates lower light. Although better for greenhouse culture, another beautiful relative is the rex begonia vine, *Cissus discolor*.

Coleus, *Coleus blumei*. These extremely colorful plants are popular for garden use. Under lights, they tend to have less color than outdoors unless they get very bright light.

Dieffenbachia, Dumbcane. Many satisfactory species and varieties are available. These plants have large, showy leaves with spotting and variegation. Medium light range is best and will prevent loss of lower leaves. Plants may become too tall but can be cut back.

Dracaena: Corn plant, *Dracaena fragrans massangeana;* Dragon tree, *Dracaena marginata;* and Ti plant, *Cordyline terminalis 'Ti.'* Most dracaenas become large plants. They are well adapted to house conditions and tolerate low light although they also do well in medium light. They need to be

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kept warm and constantly moist for best growth. Ti plant develops best leaf color in bright light and therefore is less suitable for locations where it receives only artificial light.

Flame Violet, *Episcia cupreata* varieties. These close relatives of the African violet have beautiful foliage in many color patterns. Flowers are red, pink, purple, and yellow. Light needs are the same as for African violets. The plants need high humidity and temperatures that do not drop below 65 degrees.

Ferns: Birdsnest fern, *Asplenium nidus;* Boston fern, *Nephrolepis exaltata bostoniensis;* Holly fern, *Cyrtomium falcatum;* and Maidenhair fern, *Adiantum* species. The word fern brings to mind the Boston, or sword, fern with its many varieties. These ferns are durable houseplants that tolerate low light but prefer a medium light level. Keep them cool and moist. Holly fern likes cooler home temperatures; however, birdsnest fern prefers warmer temperatures. Ferns may develop brown leaves or leaflets at low humidity. Maidenhair ferns should never be allowed to become dry.

Ficus Species: Rubber plant, *Ficus elastica* varieties and Weeping fig, *Ficus benjamina*. These large plants are well suited to most home conditions and are best grown in a medium light range. Low light may result in a drop of foliage. Keep soil evenly moist. They tolerate low humidity.

Gloxinia, *Sinningia speciosa fifyana* varieties. This colorful African violet relative needs a medium light range to prevent elongation of the stems as well as to promote abundant flowering. Buds sometimes appear but fail to develop. This may indicate insufficient light, too low humidity, or mite damage.

Hoya: Hindu rope plant, *Hoya carnosa* 'Hummels compacta' and Wax plant, *Hoya carnosa*. Hoyas are vining plants with thick waxy leaves. They tolerate low light but need medium light to grow and high light to flower. Plants should not be moved; allow them to remain undisturbed. Keep slightly cooler and drier in winter.

Impatiens, Sultana; *Impatiens walleriana holstii*. This popular garden plant can also be grown indoors. It needs medium to high light indoors for compact growth and good flowering. It is very susceptible to spider mite damage.

Ivy, *Hedera helix* varieties. These vining plants with leathery leaves grow best in medium to bright light areas. They need constant moisture to prevent leaf drop, and they tend to grow better when kept slightly cool indoors.

Jade Plant, *Crassula argentea*. This succulent plant is well adapted to indoor conditions. Although most crassulas prefer sun, jade plant will tolerate lighting as low as 25 foot-candles; however, growth will be thin and leaves small. Avoid overwatering and tight soils.

Herbs. Some people are interested in growing culinary herbs under lights. For best growth, most of these require fairly bright light. If you attempt them under artificial light, use as much light as possible with a long duration.

Norfolk Island Pine, *Araucaria heterophylla* (formerly *excelsa*). This is a durable plant for home conditions. Although tolerant of poor light, it develops better growth at medium light conditions. With poor care and low light, it may lose symmetry.

Orange: Dwarf or Calamondin; *Citrus mitis*. Potted citrus plants prefer bright light for best growth and fruiting. You may keep them at medium light intensities during midwinter. The calamondin orange is the most popular potted citrus, although Meyer lemon and Ponderosa lemon are also satisfactory for home use.

Orchids. Few orchid species are well suited to the average home's artificial light conditions. Seedling plants do well under artificial lights; however, mature flowering size plants need bright light for best growth and flowering. Some genera better adapted to the light garden include *Epidendrum, Paphiopedilum, Brassavola,* and *Phalaenopsis*. All orchids need excellent drainage and air movement.

Peperomias: Baby rubber plant, *Peperomia obtusifolia;* Emerald Ripple, *Peperomia caperata;* and many other suitable species. Most peperomias have fleshy leaves and stems. They are small plants well adapted to home conditions. Provide a medium light level, although peperomias can tolerate poor light for limited periods. Avoid overwatering which may promote stem rots.

Philodendrons: Heartleaf philodendron, *Philodendron oxycardium;* Splitleaf philodendron, *Philodendron pertusum;* and other suitable species. The heartleaf philodendron tolerates low light; most prefer a medium light range for best growth indoors. Most are well adapted to home growing. They should be maintained at fairly uniform moisture.

Pleomeles: Lance dracaena, *Pleomele reflexa* and Malaysian dracaena, *Pleomele thaliodes*. These plants are gaining popularity because of their durability as potted plants and tolerance to low light conditions. They grow best in a medium light range with uniform soil moisture.

Palms: Areca palm, *Crysalidocarpus lutescens;* Dwarf date palm, *Phoenix roebelenii;* Neanthe bella palm, *Chamaedorea elegans 'bella';* and Kentia palm, *Howeia forsteriana*. Neanthe bella and kentia palms are most tolerant to low light conditions. Other palms are best suited to medium light areas. Bright light may cause fading in some species. Palms prefer fairly uniform moisture, but occasional slight drying can be beneficial. Palms grow relatively slowly indoors. Keep close watch for spider mite damage.

Pothos, Devil's Ivy; *Scindapsus aureus*. This popular variegated climbing vine is similar to heartleaf philodendron and satisfactory for low and medium light conditions. It requires less uniform moisture than philodendron.

Sansevieria, Snake Plant, Mother-in-law-tongue; *Sansevieria trifasciata*. This very popular and durable plant grows well indoors. It tolerates poor light but makes best growth in medium to bright light conditions. Dwarf and variegated forms are available. Avoid overwatering.

Schefflera, Umbrella Tree; *Brassaia actinophylla*. This plant prefers bright light but tolerates medium light or even low light for limited periods. It will drop foliage in extended periods of poor light or if kept too wet or too cool. Spider mites are a common problem.

Spathiphyllum, 'Clevelandii' or 'Mauna Loa.' These plants adapt to low light conditions but need medium light to flower. Their white, anthurium-like flowers are long lasting. Do not allow plants to dry out.

Spider Plant, Airplane Plant; *Chlorophytum comosum* 'Vittatum.' Long drooping leaves and runners producing small plants make this a popular hanging plant. Solid green and variegated types are available. They tolerate low light but grow best in the medium range. Keep well watered.

Swedish Ivy, *Plectranthus australis*. This creeping plant is used for hanging containers. Provide a rich soil for it. Although it tolerates low light, more dense growth and branching occurs at medium light intensities.

Wandering Jew, *Tradescantia fluminensis* and *Zebrina pendula*. These popular hanging plants tolerate home conditions and may be grown in low light. However, growth is more compact, and color development is better in medium light. They prefer uniform moisture.

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Appendix E

Grounds for Gardening
A Horticultural Guide
Agricultural Guide
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Drying Flowers and Foliage For Arrangements

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Figure 1. Arrangement of dried flowers includes zinnias, roses, acroclinium, baby's breath and eucalyptus foliage.

Why Dry Flowers?

1. Dried plant materials provide distinctive indoor decoration.
2. Arrangements made from dried materials are long lasting and require little care.
3. Drying flowers and foliage expands gardening activities without elaborate equipment or previous experience.
4. Drying flowers is inexpensive.

Collecting Flowers For Drying

Flowers and other plant materials for drying should be picked close to their prime. Flowers to be air dried continue to open as they dry, and therefore such flowers should not be fully open at picking. Never place wilted flowers into drying mixtures.

Flowers or leaves for drying may be collected at any time during the growing season from early spring until late fall. Always collect more material than is needed, to allow for damage. Use only the most perfect forms. Poor shapes dry as poor shapes. Use only plants and flowers free of insect and disease damage. Damage becomes only more obvious after drying. Pick flowers when they are free of dew or rain. Place stems promptly in a container of water to prevent wilting while gathering.

It is sometimes difficult to develop graceful lines when making dried flower arrangements. Therefore, while collecting, look for branches and stems with sweeping curves or lines that will add distinctiveness to the arrangement. If none can be found, curves or other lines can be made by shaping the branches or stems into the desired positions while they dry.

In addition to flowers, stems, and leaves that may be dried indoors, there are many materials that can be collected in the fall and used almost directly in arrangements after gathering. These include many seed pods, cones, grain, grasses and berries found in the garden as well as in fields and roadsides.

Methods For Drying Flowers

Air Drying. There are a number of garden flowers, as well as wild plants, that can be dried simply by hanging them upside down in a warm, dry place for several weeks. Flowers best suited to this are the "everlastings" and a few others that do not wilt readily. Some, such as globe amaranth can be dried in bunches on their natural stems. Others, such as strawflower, should have a wire substituted for stems before drying.

Steps for Air Drying

1. Cut flowers of good quality at prime conditions or slightly immature.
2. Remove foliage from stems. If stems are weak or become brittle after drying, remove them and wire the flowers.
3. Group the stems into small bunches and tie with a rubber band. It will pull tighter as the stems shrink during drying.
4. Hang upside down in a warm, dry, dark area such as an attic, closet, or furnace room. Avoid damp rooms or direct sun on the flowers. Good air circulation is important.
5. Allow to remain until thoroughly dried. This normally takes two to three weeks.

Natural stems dried in this process will generally be fairly straight. These may be bent for arranging by submerging the stems in warm water until they have softened. Then, bend them to the desired position and weight them in that position until they have dried. Some may be laid on curved cardboard to conform to the curvature as they dry.

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Flowers Suitable For Air Drying

Acroclinium, Swan River Everlasting
Baby's Breath
Bachelor's Button
Bells of Ireland
Cockscomb
Edelweiss
Globe Amaranth
Larkspur
Scarlet Sage and Blue Sage
Sea Lavender
Statice
Strawflower
Xeranthemum, Immortelle
Yarrow (Yellow varieties best)

In addition to the garden flowers and everlastings that may be air dried, many seed heads of grasses and other plants can be hung to dry. Even a few large flowers, such as peony and hydrangea, are sometimes dried in this way. However, since they are quite large, they should be hung individually rather than in bunches.

Grasses suitable for drying include Bristly foxtail, Hare's-tail grass, Fountain grass, Pampas grass, Eulalia grass, Quaking grass, Spike grass and Squirrel-tail grass.

Seed heads include Cat-tail, Dock, Honesty (Money Plant), Iris, Lily, Milkweed, Mullein, Poppy, Queen-Anne's Lace, Teasel and many others.

Pressing. Pressed flowers are especially suitable for flower pictures, as well as decoration on note paper, place cards and many other items.

Collecting For Pressing. Use flowers for pressing that are in prime condition. Also, use flowers with different stages of development up to full maturity for more variety in design. Avoid plants with fleshy stems and leaves as well as flowers with very thin petals. Don't try to press wilted materials. Flowers that are flat, such as pansies, press best.

Methods for Pressing. The faster flowers dry, the better they retain color. On the other hand, flowers can't be exposed to excessively high temperatures. Although they may dry quickly, they will turn brown.

Pressing requires sandwiching flowers and foliage between layers of an absorbent material. This should be clean and hold the flowers firmly and flat during the drying process. Porous materials that allow some air movement are also beneficial.

Flowers are generally placed between a non-glossy type of paper. Newspapers, old telephone directories, or catalogs are suitable. Absorbent facial tissues placed on the pages aid rapid moisture absorption. Tissues should be removed and flowers or foliage replaced between fresh, dry tissues and papers at the end of the first week. After the flowers and tissues have been placed in the folded newspapers or books, stack them several layers deep. Place boards beneath, and on top of the stack. Put the stack in a warm, dry place with a heavy weight on top.

Another very satisfactory system suitable for drying flowers uses a combination of cardboard, newspaper and desk-sized blotter pads. Corrugated cardboard is cut into sheets slightly larger than the sheets of folded newspaper. Flowers are positioned on one side of the opened newspaper. Then the newspaper is closed, and a sheet of blotter paper placed on either side.

After all flowers have been placed between the newspapers, blotter paper, and cardboard, the layers are stacked and tied, or taped together. They should then be placed in a warm, well ventilated place and weighted. If large numbers of flowers are pressed, write a date on the stacks to keep track of drying time. Special presses can be purchased or constructed for drying large quantities of materials.

Flowers for Pressing. The following flowers produce good results when pressed. However, there are many others that may be used, and experimentation with those available is suggested.

Ageratum
Alyssum
Anemone
Azalea
Bleeding Heart
Buttercup
Butterfly Weed
Candytuft
Celosia, Cockscomb
Chrysanthemum
Columbine
Cornflower, Bachelor's Button
Cosmos
Crocus
Daffodil
Daisy
Delphinium
Dutchman's Breeches
Geranium
Golden Rod
Heath
Heather
Hydrangea
Johnny-Jump-Up
Larkspur
Lily-of-the-valley
Marigold
Nemesia
Pansy
Phlox
Primula
Queen Anne's Lace
Rose
Salvia
Statice
Sweet Pea
Verbena
Zinnia

Drying Mixtures for Burying Flowers

Flowers may be dried in their natural form by totally burying the flowers in one of several materials.

Borax Combined With Either Sand or Cornmeal. One of the least expensive mixes for drying flowers is made from sand and borax. The sand must be fine, clean, and dry. Sand is relatively heavy to work with, and tends to flatten flowers unless used very carefully.

A more popular mixture for drying is made of equal parts of borax and white cornmeal. The cornmeal is light weight and has less tendency to flatten flowers. It also makes boxes easier to handle and move after filling. The main function of these materials is to hold the petals in place while they dry naturally. Good aeration is important for rapid drying. Some feel that the addition of about three tablespoons of uniodized salt per quart of mix helps petals retain color during drying. The ratio of borax to sand or cornmeal varies widely, but the quality of drying does not seem to differ greatly between them. Ratios varying from 1:1 to 1:6 have been used (First number refers to borax).

Silica Gel. Generally, the most satisfactory material for drying flowers at home is silica gel (Fig. 2). Initial cost is

Figure 2. Gloriosa daisies recently dried in silica gel. Flower on lower right has not been dried.

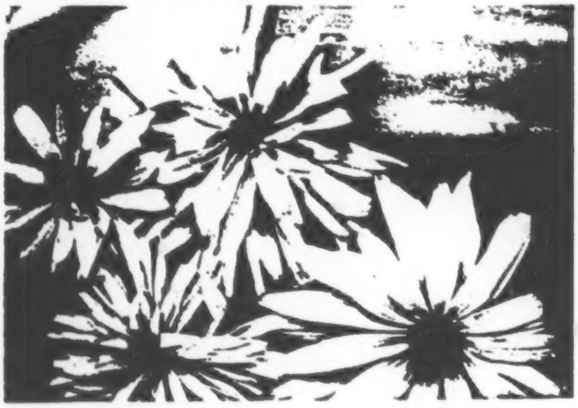

Figure 3. Hooked wire is pulled into center of the flower.

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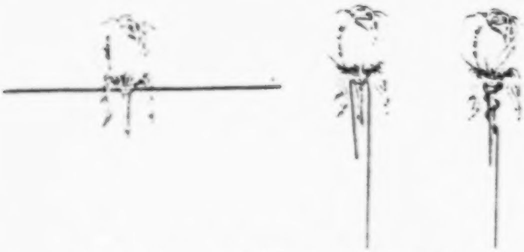

Figure 4. Cross-wiring a rose before drying.

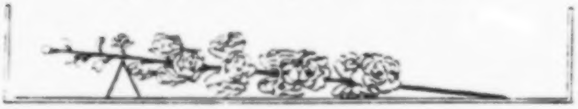

Figure 5. Provide support to dry spike flowers in a horizontal position.

greater than that of borax-sand or borax-cornmeal combinations, but it can be used over and over for many years. Since it dries flowers quickly, more flowers can be moved in and out of the mixture during a single season than in the same quantity of a borax mixture.

Silica gel is available under a number of trade names. It is white but some types contain blue crystals that act as an indicator of the amount of moisture which has been absorbed. When these crystals are a clear blue the material is dry. As moisture is absorbed from the flowers, the crystals gradually turn pink. At that point it is time to redry before using again.

To dry the material, spread the silica gel on open pans or cookie sheets in a layer ½ to ¾ inch thick. Bake in an oven at about 250 degrees until the crystals are blue again. This may take about an hour. Stir the crystals several times while they are drying. Keep unused silica gel in air-tight containers.

Burying Flowers for Drying

The method for burying flowers in any of these materials is essentially the same. However, there are some differences in the types of containers to use, as well as drying with either natural stems or wire stems.

Containers. Flowers dried in borax mixtures should be left uncovered during the drying process. Therefore, low cardboard boxes with tight, strong bottoms are ideal. This allows good air movement throughout the mixture, and if desired, stems may be left attached and sticking out of the mix to air dry.

Flowers dried in silica gel must be placed in air-tight containers. If the containers are not sealed tightly, the silica gel absorbs moisture from the air, and flowers dry too slowly or not at all. Candy tins, plastic containers, coffee cans, large-mouth jars, or any other container with a tight fitting lid may be used. If nothing with a tight lid is available, seal loose tops with tape.

Figure 6. Silica gel is gently sifted over the petals until they are totally covered.

Use shallow containers to make maximum use of the drying material. The natural stem should be removed before drying most flowers in silica gel. Therefore, flowers wired before drying are more easily arranged later.

Wiring. Two techniques of wiring may be used—*hook wiring* and *cross wiring*. Hook wiring may be used for daisies, marigolds, zinnias, or other flowers with soft centers. Flowers with a harder base or center, such as roses, should be cross wired.

To hook wire a flower, use about a 20 to 24 gauge wire and push it upward through the center of the stem, if hollow, or through about the center of the flower. Push it out the top of the flower, bend a small hook in the end of the wire and pull it back into the flower, hooking the center (Fig. 3). Make sure that the small hook is well hidden in the flower's center. If it is not, as the flower dries, it will become visible.

To cross-wire a flower, push the wire through the base of the flower, at right angles to the stem. The wire is centered in the flower base, and both ends are then bent down to form a short stem (Fig. 4).

In shallow containers, the wires may be bent several times, or simply bent out of the way for drying. Later, they can be straightened after the flowers have dried, and other wires added to prepare them for arranging.

Flowers Suitable for Burying. Types of flowers that may be dried in silica gel and the other materials are almost limitless. However, some are more satisfactory than others, and are best for the beginner. Any flowers that readily shed their petals, such as poppies, are unsuitable. The following list names some flowers worth trying.

Anemone
Aster
Baby's Breath
Bachelor's Button
Black-eyed Susan
Blue Sage
Chrysanthemum
Daffodil
Dahlia
Daisy
Delphinium
Gloriosa Daisy
Hyacinth
Larkspur
Lilac
Lily-of-the-Valley
Marigold
Nierembergia
Pansy
Peony
Rose
Salvia
Scarlet Sage
Snapdragon
Stock
Verbena
Zinnia

As most of these flowers dry, colors will darken. Therefore, extremely dark flowers, especially in the red, purple and blue ranges may become almost black after drying. Whites generally develop a cream or tan color.

Burying the Flowers. Flowers with wired stems are dried facing upward, and the stems are bent or curled to lie parallel to the bottom and out of the way. Flowers on natural stems may be dried on their sides, (as in the case of spike flowers such as larkspur or snapdragon) or upside down with stems protruding upward. Working the drying agent between the petals is difficult when flowers are placed facing downward. When placing flowers on the side a brace is necessary to hold the stems so flowers on one side are not flattened (Fig. 5).

To dry flowers facing upward:

1. Place a layer of drying material in the bottom of the container about 1 to 2 inches deep.
2. Bend the wire stems to the side, or curl up.
3. Place the flower on the layer of material in the bottom of the container. Push wire stem down into material.
4. Gently work the base of the flower into the material so it is well situated, petals supported, and in a normal position.
5. Gently sift the material over the petals, making sure that all petals remain in place as the material is added (Fig. 6).

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6. If any petals are bent, use a toothpick or similar item to reposition them.
7. Continue to add material until each flower is entirely covered.
8. After all flowers have been added and covered, lift the container and tap it gently on the base to help settle the material.
9. After tapping, make sure all petals are still covered. If any have been exposed, add more drying material.
10. Prepare for storage.
    a. Borax combinations can be placed directly in a warm dry place without covering. Drying will normally take two to three weeks.
    b. Silica gel should be tightly covered, or sealed if the lid is not air tight. Flowers should dry in three to eight days. The exact time varies with the thickness of the flower. If removed too soon, petals will droop, if removed too late petals become brittle and break easily.

Removing Flowers From the Mixtures. Since petals become fairly brittle after drying, care is important when removing flowers from the mixture. Pour off, or gently brush to one side some of the mixture on the surface of the container. As petals become visible, gently lift the flowers upward by placing the fingers beneath them. Turn each flower upside down after removal, and tap out any remaining residue. If a white dust remains, remove it by carefully brushing with a soft, dry artist's brush or gentle stream of air.

Some flowers, such as chrysanthemum, drop petals easily. These can be reinforced by dropping glue on the bottom at the base of the petals. Use a glue that becomes clear after drying.

ADDING STEMS FOR ARRANGING. Flowers often need wire in the stem for arranging. A heavier wire, such as 18 gauge, may be used. Simply twist the short wire that was placed in the flower around the stem-wire and wrap them together with floral tape.

Styrofoam blocks, or dry floral foam may be used to hold the wire stems in place in the selected container. The bottom of a deep box may be covered with Styrofoam to hold the wired flowers upright in storage.

Storing Dried Material

Preserved flowers, especially those dried in silica gel, may absorb moisture from the air during humid periods. As a result, petals may droop. For this reason they should be stored loosely in air-tight containers during the summer months and arranged in the autumn. During winter, home humidity is generally low enough so moisture absorption by the petals is not a problem. Plant materials that have been air dried should be kept in a dry place in covered boxes.

Dried materials in storage may occasionally be attacked by one or more household insects such as museum beetles, silverfish, roaches or others closely related to them. As they chew on the soft tissue of the plant centers, flowers may shatter and fall apart. They are not necessarily on the flowers as they come from the garden, but move into the boxes in the home during storage.

Occasionally, check boxes and if insects are present destroy the infected materials. Tightly sealed containers prevent invasion. If the pests are present, thoroughly clean the container before using it again. Naphthalene flakes may repel insects or some general insecticides may help control them, but once an area is infested, complete eradication is difficult. Cleanliness and persistence are the best means of remedying the situation.

Don't consider dried flowers as everlasting. Preferably, they should be replaced yearly, but with good care they often last longer. Even the best dried flowers gradually fade and should be discarded when they no longer produce the desired effect. Flowers that tend to fade may be lightly tinted with aerosol paints or dyes for more durable color. With care the natural look is preserved.

Preserving Foliage With Glycerin

The dried flower arrangement without foliage may seem stiff and unnatural. Leaves add much to an arrangement and can easily be preserved by a process known as "glycerinizing." This technique makes the leaves and stems soft, pliable, and long lasting so they may be used over and over.

1. Select branches with the desired curves, and with foliage that is not damaged by insects or disease. Generally, a branch about 18 inches or less in length is best for glycerinizing.
2. Remove lower leaves, and crush or split the stem end of woody materials to increase absorption.
3. Make a mixture of one part glycerin and two parts warm water. Stir well, and pour into containers so the liquid is about 4 to 5 inches deep.
4. Mark the level of the mixture on the container (glass containers are best), and place the stem end of branches into it.
5. As the branches absorb the mixture, add a reserve mixture which contains one part glycerin to four parts water to the original marked level.

Don't place too many branches in a single container. Good air circulation around the leaves is important for best absorption. Keep them at room temperature.

Foliage color will gradually change as the glycerin is absorbed. It will take from one to three weeks for most branches to glycerinize.

Some leaves, especially thick and waxy ones, may not glycerinize well by this method. Individual leaves of plants such as ivy or southern magnolia may be glycerinized by totally submerging the leaves into the mixture. They should be placed in a single layer and weighted to keep them beneath the liquid. After they become soft and pliable (2 to 6 days) they should be removed. After removal, drain and wipe the leaves clean with a soft cloth.

In addition to glycerinizing, leaves may also be dried with the same techniques used for drying flowers. However, they become brittle and must be handled very carefully.

Leaves Suitable for Glycerinizing. This list covers some plants most easily glycerinized. Houseplants, trees, shrubs, florist's foliage and garden flowers are included.

Anthurium
Aspidistra
Beech
Cotoneaster
Crabapple
Dracaena
English Ivy
Galax
Lemon
Magnolia
Mountain Ash
Maples
Oaks
Orange holly-grape
Peony
Periwinkle
Purple-leaf Plum
Poplar, white or silver
Quince, flowering
Russian Olive
Salal
Spirea
Sweet Gum
Ti Plant
Weigela

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Floristry

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FOREWORD

The development of the *Floristry* curriculum guide is the result of suggestions by the MVATA Teaching Aids Committee. The Floristry Advisory Committee suggested the topics to be included and reviewed the materials.

This seven-unit curriculum contains 30 lessons. Topics include: the floristry industry, plant identification, post-harvest handling, the mechanics of floral design, basic principles of floral design, construction of various types of designs, and shop operations. An instructor's guide can be purchased separately.

During the summer of 1981, the Missouri State Board of Education formally adopted the concept of "Instructional Management Systems" (IMS) as a priority for the 1981-82 school year. The Missouri Commissioner of Education described the IMS concept as a practical way of "organizing for excellence" in education. To meet the demand for greater productivity and accountability, the director of Vocational Education applied the elements of IMS to form the Vocational Instructional Management System (VIMS). The VIMS process provides a framework to use in planning and organizing to assure excellence in Missouri's vocational education system by focusing greater attention on the management of teaching and learning.

The instructor's guide to accompany this student reference incorporates the needed component parts to aid agriculture teachers in the implementation of VIMS.

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FLORISTRY

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Lesson 1:
Structure of the Floristry Industry

In order to work in the floristry industry, it is important to be familiar with its past, present, and future. This lesson examines how the floristry industry fits into the three major divisions of floriculture. The major flower production areas, the history and development of floral design, and the importance of floristry in Missouri, the United States, and the world will all be explored.

The word floriculture comes from two Latin words: "flora," which means 'plants,' and "Cultura," which was the name for the goddess of flowers and from which our word "culture" (as in "the care of") is derived. Hence floriculture simply means "culture or care of plants."

Floristry and the Floriculture Industry

Floriculture is the business of growing, harvesting, storing, designing, and selling flowers and potted plants. Cut flowers, flowering potted plants, potted foliage plants, cut foliage plants, and bedding plants are all included in floriculture. Retail floristry, a division of the floriculture industry, is concerned mainly with the handling and designing of flowers and live plant materials.

The floriculture industry first developed in the United States around the larger metropolitan areas, such as New York and Philadelphia.

During the 1950s refrigerated trucks, railroad cars, and jets became the primary means of flower and plant transportation. They enabled floriculture growers to ship their products over longer distances and to produce cut flowers in areas where warmer temperatures lowered production costs.

Intercontinental jet transportation has also made it possible to produce cut flowers where environmental factors are ideal and labor costs are low. For example, carnations were first grown in Bogota, Colombia in 1966. Now there are over 50 firms in Bogota that exclusively produce cut carnations on more than 500 acres of land. Because intercontinental jet transportation has broadened their marketplace, this trend toward South American production continues with cut chrysanthemums and cut roses.

Floriculture Production

Floriculture products are grown at many sites around the world. In some countries, cut flower production takes place outdoors; plant materials are also grown in greenhouses. After the flowers are harvested, they may then be packed and shipped via truck or air to wholesalers. The wholesaler may also purchase flowers from flower brokers or through auctions. In turn, wholesalers sell the flowers to retail outlets. The retail florist may also purchase plant materials directly from the local grower. The retailer then prepares the floriculture products for the customer. See Figure 1.1 for an illustration of the route taken by flowers and other plant materials from grower to consumer.

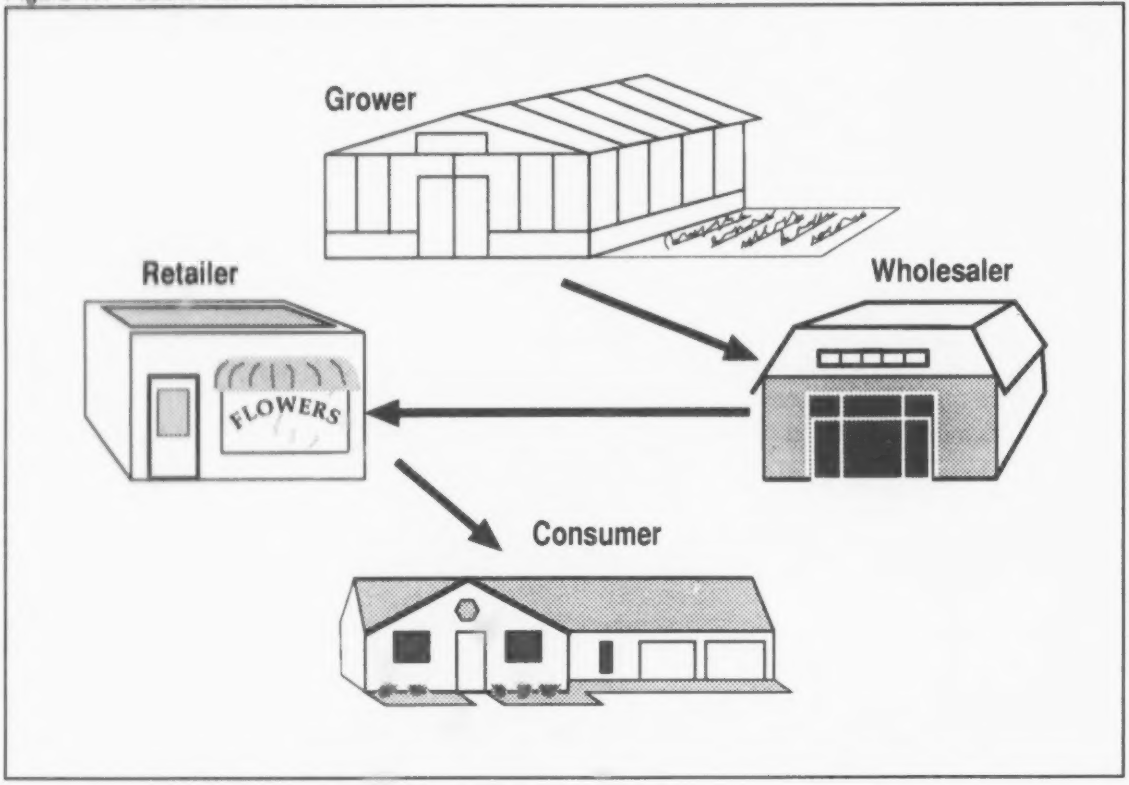
Although over 60 countries worldwide produce and export flowers, Holland, Colombia, Israel, and Italy are the dominant countries in the floriculture market. The United States is the world's largest producer of floral crops, but it does not export many plants. Holland, however, produces flowers specifically for export. Many countries ship flowers to Holland for export to the rest of the world. In the United States, California, Colorado, Ohio, Florida, and Hawaii are the largest flower producers.

Three divisions are recognized in the floriculture industry. They include greenhouse growers, wholesale florists, and retail florists.

Greenhouse Growers

Greenhouse growers produce fresh flowering potted plants, foliage potted plants, cut flowers, and cut foliage. In Missouri, greenhouse operations are important in the production of flowering potted plants, potted foliage plants, and bedding plants. According to the *1992 Census of Agriculture*, there were 420 Missouri businesses raising foliage plants, potted plants, bedding plants, and cut flowers. Cumulatively these businesses utilized 6,981,961 square feet under glass and 164 acres in the open for the cultivation of their crops. Furthermore, these crops resulted in $39,580,000 in sales.

Figure 1.1 - Basic Path of Floral Products



Wholesale Florists

The wholesale florist purchases floriculture products from growers and sells them to retail florists. Wholesale florists may also purchase their products from floral brokers. Some large wholesalers have representatives at Aalsmeer, the large Dutch floral auction, to purchase and arrange for shipments of flowers. Wholesale florists may contract with local growers a year in advance for floral products needed during holiday seasons.

Retail Florists

The retail florist arranges or prepares floriculture products for sale to the general public. Because retail flower shops greatly differ, it is difficult to generalize characteristics. The following statistics were taken from the magazine *Flowers&*, January 1996.

1. Sales in the U.S. market for floral goods in 1995 are projected to total $14.1 billion.
2. There are approximately 39,000 retail flower shops in the United States.
3. In 1995, an average of $54.04 per capita was spent on floral goods in the United States.
4. The flower that generates the most revenue is the rose, with over 1.2 billion stems sold in 1994.
5. Eighty-two percent of major supermarkets in the United States sell plants and flowers, with 25 percent offering floral arranging services.
6. Non-florist outlets accounted for 47% of sales in the floral item market in 1995.

Evolution of Floristry Trends

Flowers have been used for decoration since ancient times. Ancient Egyptians decorated their tombs with wall paintings of flowers and flower arrangements. The Romans used wreaths and garlands to decorate their homes. They were especially fond of very fragrant and brightly colored flowers.

During the Renaissance, people used flower symbols extensively, often associating them with religion.

The Baroque period followed the Renaissance in Europe during the 17th and 18th centuries. The Baroque style is typified by very elaborate use of curved lines and massed and very full flowers.

The Victorian era heavily emphasized colors and patterns. Flower arranging was first recognized as an art form during this period, and floral design classes were taught.

Oriental flower arranging places importance on individual flowers and plant forms. Lines and negative space are important to the design, and each flower and piece of plant material has symbolic meaning.

In the United States, the art deco style was popular during the 1920s and 1930s. This style is distinctive for its strong geometric lines and patterns. During the 1960s and 1970s, tight geometric forms became popular.

Current Trends in Floristry

Current trends in floristry are directed toward offering more services in the average florist shop. The majority of the shop's business is received through the telephone.

Grocery stores and large department stores are expanding their services, and some offer very large and active retail flower shops. Some small flower shops are also located in hotel lobbies and hospital gift shops. These shops have more cash-and-carry or walk-in trade. The recent growth in the retail flower market has been attributed to these flower markets. For convenience, customers purchase floral products where they usually shop for other items, such as food.

American attitudes about decorating with flowers are shifting toward a European emphasis. People are keeping more flowers in their homes and in more casual settings. To cater to this trend, florists will need to provide flowers that are easily available and attractively priced. In the potted plant market, for example, the trend is shifting towards providing smaller plants, usually in four-inch pots. Customers also want plants and cut flowers that require little care and will last longer.

Summary

Floristry is a division of the floriculture industry. While floriculture is the business of growing, harvesting, storing, designing and selling flowers, floristry is mainly concerned with handling and designing flowers and live plant materials. Throughout human history, flowers and flower arrangements have been used for special occasions. Today, customers are purchasing flower products from florists that are conveniently located. Customers are also demanding plants and cut flowers that will last longer and are easier to care for.

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Lesson 2: Career Opportunities

In recent years, flower sales have risen dramatically. Some of this growth can be attributed to an increase in population, but people are also becoming more interested in green and growing things. Flower sales will likely continue to increase. As sales increase, knowledgeable workers will be in even greater demand in the floristry field.

Wholesale Florist Industry

A wholesale florist will purchase flowers, floral products, and supplies. They often are imported from countries all over the world. These products are then sold to the retail florist.

There are many job opportunities available at the wholesale florist level, especially in some of the larger firms. A listing of some of the major careers and their duties follows.

General manager - The general manager oversees the operation of the business. This person is responsible for hiring, firing, and managing personnel, preparing employee work schedules, setting salaries and commissions, overseeing the purchase of supplies and flowers, and keeping the profit margin in line.

Cut flower manager - The cut flower manager hires, fires, and manages personnel when the manager is absent. This person buys all cut flowers and cut greens, oversees the cutting of flowers and cleaning of coolers, and keeps perishable products moving.

Supply manager - The supply manager hires, fires, and manages personnel when the manager is absent. The supply manager buys all supplies and sees that shelves are stocked. This person coordinates all holiday shows, prepares flyers for specials and shows, oversees advertising, and informs all employees of upcoming specials and new pricing updates. The supply manager is in charge of inventory, including adding new items to the inventory, maintaining correct price structures on supplies, closing out old products, and keeping inventory in line with current trends. He or she also designs displays.

Office manager - The office manager mails out statements and invoices, writes checks, and maintains the payroll and customer credit. This person also handles accounts payable calls and makes collection calls.

Receptionist - The receptionist answers the telephone and directs calls. This person also sets up new accounts, greets customers, and answers questions.

Sales representative - The sales representative sells supplies to florists, tracks the inventory, and knows what new items have arrived.

Road sales representative - The road sales representative travels on a route to florists in a given area to visit their shops and take orders. This person also delivers orders.

Bookkeeper - The bookkeeper keeps the books of the business.

Data processor - The data processor enters data into computer files and prints out invoices for customers.

Flower packer - The flower packer packs orders to be shipped out to florists.

Delivery person - The delivery person delivers flower orders to florists in the immediate area. He or she may also care for potted plants.

General personnel - General personnel help unpack flowers, fill orders, keep the store clean (especially the coolers), rotate flowers, wash out buckets, stock shelves, and complete walk-in customer sales.

Job Skills at the Wholesale Level

Each of these occupations requires different skills. The manager and the cut flower manager need good communication skills to deal with customers and employees. They must also have excellent business management abilities and math skills and be able to maintain good customer and employee relations. The manager needs to have good leadership skills as well.

communication skills as well. In addition, the supply manager needs to have design skills and artistic ability. The sales representative and road sales representative need to have sales ability. They should also be knowledgeable about their products, use of supplies, and plant identification.

The office manager and bookkeeper need clerical skills as well as excellent organizational skills. The receptionist needs good communication skills, especially telephone skills.

The data processor needs to have excellent data entry skills because it is essential for this person to quickly and accurately type out invoices for waiting customers.

The flower packer needs skills in handling flowers as well as making quick and efficient use of time. A wholesaler sends out the majority of their flowers in the early morning. It is imperative that florists receive their orders in good condition in time for the day's business.

The delivery person needs good driving skills and must be able to make minor repairs tó delivery vehicles. Again, efficiency is essential for this job in order for deliveries arrive at their destinations as quickly as possible.

General personnel need sales skills as well as organizational skills. They are often called upon to do a variety of duties and to help out where needed.

Retail Florist Industry

A retail florist will provide a variety of products and services. Among the products offered for sale are: fresh cut flowers, flowering potted plants, foliage plants, fresh cut arrangements, balloons, and gift items. A delivery service is also usually provided. Funerals and holidays provide the largest percentage of their business, with the four biggest holidays being Valentine's Day, Secretaries Day, Mother's Day and Christmas.

In a retail flower shop, the owner is often the manager as well. If owners are unfamiliar with the floral industry, they may hire a manager, at least until they feel comfortable in running the shop. In many retail shops, employees may be trained to do another job. For example, the floral designer might also be the sales representative for the shop.

If a manager is hired, he or she will hire and train employees, supervise designers, sales people, and delivery people, order flowers and supplies for the shop, prepare employee work schedules, price products to be sold, and oversee sales promotions and advertising. The manager may design as well.

The floral designer creates and constructs floral designs and arrangements. This person will often design displays within the shop or in the window.

A florist shop sales representative waits on customers in the store, takes telephone orders, offers advice to customers, and may package orders. This individual also unpacks and processes cut flowers and potted plants and may care for potted plants. The sales representative may design arrangements as well.

The delivery person for the flower shop delivers finished arrangements and plants to customers and may find it necessary to repair any arrangements that were damaged in delivery. The delivery person routes deliveries, checks with customers by phone to see when they will be at home to receive orders, and keeps the delivery van clean and in good running condition in order to represent the shop well. In many retail floral shops, the delivery person is also responsible for taking care of the potted plants in the shop.

The office worker sends out statements, takes care of paper work as needed, and orders supplies as approved by the manager or owner.

The bookkeeper keeps the books of the business and monitors the cash flow. This person needs to report to the manager on a regular basis concerning the financial health of the shop.

Job Skills at the Retail Level

The shop owner and manager need good business and communication skills as well as the ability to maintain employee and customer relations. The manager of the shop also needs to have good leadership skills.

The floral designer needs artistic abilities, communication skills, and sales abilities. The designer must be a fast and efficient worker.

A flower shop sales representative often needs the same skills as the floral designer. The same person often fills both roles, though some larger shops hire separate sales representatives to wait on customers and answer the telephone. The sales representative should know how to care for potted plants.

The delivery person for a retail shop needs the same skills as the delivery person for a wholesaler as well as a few other skills. The retail delivery person needs some design skills because repairs often need to be made to arrangements that were damaged in transit. This person must also keep the delivery van clean and in good working condition. Knowledge about the proper care for potted plants is needed for this position.

The office worker and bookkeeper both need organizational skills, clerical skills, and accounting skills.

Careers Related to Floristry

Career opportunities closely related to the floristry industry include interiorscaping, teaching, custom floriculture, and horticulture therapy.

Interiorscaping has been becoming more common in recent years. With the proliferation of large shopping malls, office buildings, and restaurants, the use of live green plants for interior decoration has increased. Companies often hire a person to incorporate live green plants into the design of the interior of their buildings. The interiorscaper will sometimes be in charge of maintaining these plants as well.

The teaching of floriculture has increased, even being included in junior high and high school curricula.

Custom floriculture involves florists who assist people in decorating their private homes with live and/or permanent flowers. This service is especially popular during the Christmas season.

Horticulture therapy consists of the use of horticulture to help people. This type of therapy has been highly successful with people who are physically or mentally challenged, senior citizens in long-term care facilities, and prison inmates. The therapeutic value of horticulture and working with beautiful live and growing plants should not be minimized.

Continuing Professional Development

There are many places where more professional training or continuing education can be obtained. Some of these include design shows, design schools, wire service workshops, and college courses.

Wholesale florists often hold open houses several times throughout the year. They showplace what is new to the industry and hire top designers to share new design ideas with other florists.

In addition, some schools offer concentrated courses in floral design. They will often meet for a period of several weeks in which students learn a variety of different design techniques.

Various universities offer short courses ranging from a day to a week. These classes often include a large trade show as well.

The major wire services or floral organizations hold programs and workshops. Professional organizations such as the Society of American Florists (SAF), the American Floral Marketing Council (AFMC), and the American Institute of Floral Design (AIFD) hold workshops for their members. AIFD has a very selective membership of designers who have been required to pass difficult entry requirements.

Wire services such as Florist Transworld Delivery (FTD), American Floral Services (AFS), Redbook, Telefloral, Florifax International, and Carik Services, Inc. also hold programs and workshops.

The Society of American Florists, which sponsors annual meetings, is an excellent organization for a florist to join. In Missouri, the Missouri Florist's Association holds annual meetings with well attended workshops and design competitions.

A number of magazines are specifically targeted to the floral industry, and they often feature new designs and products.

Summary

Many career opportunities exist in the field of floristry. It is a rapidly expanding area that will provide many jobs in the future.

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Lesson 1: Plant Botany

To identify plants, it is necessary to be able to recognize and distinguish the different plant parts and to know their functions.

Basic Plant Parts and Their Functions

The four basic parts of a plant are the root, stem, leaf, and flower (see Figure 1.1). Each part plays a specific role in the life of the plant.

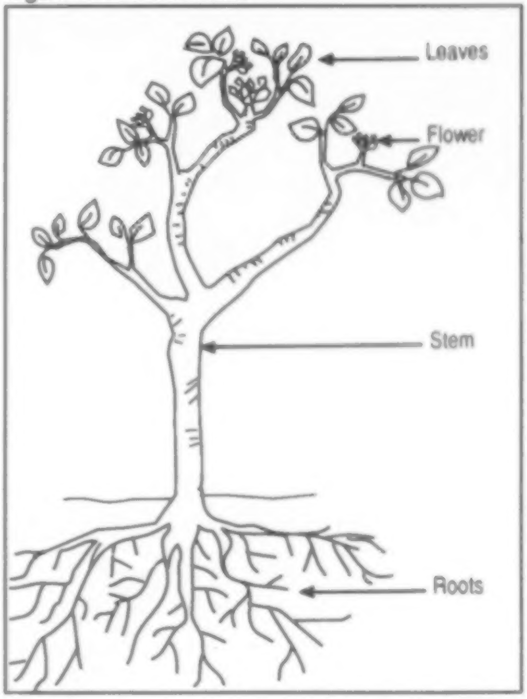
The root anchors the plant to the soil or growing medium and also serves to draw water and minerals from the soil. The root then translocates the water and minerals to all of the parts of the plant above ground. Roots may be used to store food as well.

The stem holds the plant erect and helps to display the leaves to the sunlight. It translocates water, minerals, and food to the leaves and the roots. The stem also stores food. The stem is composed of two parts: the node and the internode. The node is that portion of the stem to which a leaf is attached. The internode is the portion of the stem between the nodes. Stems also have particular shapes. The geranium stem is generally round. The begonia stem is oval, and the stems of sage, salvia, coleus, and mint are square.

The leaf is the major site for photosynthesis, the production of food. Leaves are also the site for gas exchange with the atmosphere and for the storage of food. The leaf is composed of a blade, a petiole, and two stipules. The blade is the large flattened green structure often referred to as the leaf. The blade may be very large like a palm leaf, very small like the leaves of the sweet alyssum, very thick like the jade plant leaf, or completely absent like the cactus. The petiole is the "stem" of the leaf, but it is structurally different from the main stem of the plant. It too may vary in size and shape (compare the petioles of the heart-leaf philodendron and the pothos or Devil's ivy vine) or may be completely absent, as on the jade plant. The stipules, when present, appear as two small leaf-like appendages at the base of the petiole where it is attached to the stem of the plant. Geraniums, begonias, and roses have stipules while snapdragons, carnations, and daisies do not. The shape and thickness of the blade and petiole as well as the size and presence or absence of the stipules are very important characteristics used to distinguish and identify plants.

The flower contains the reproductive organs of the plant. The size and color of the flower serve primarily to attract pollinating insects. Once pollination and fertilization take place the flower develops into a fruit that contains seeds.

Figure 1.1 - Plant Parts

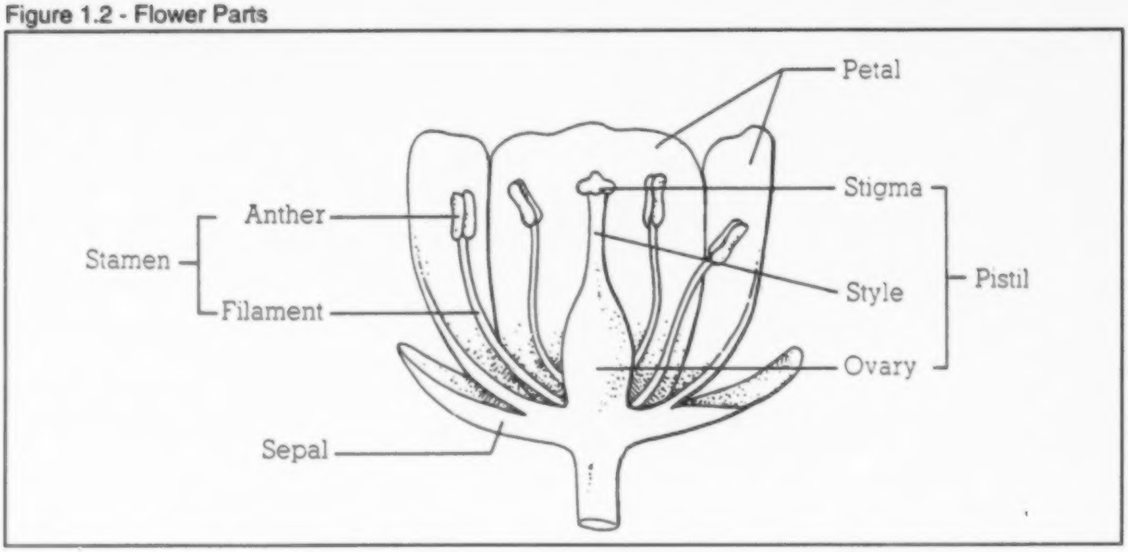


Flower Parts

Figure 1.2 shows the flower parts.

The pistil is the female part of a flower and is composed of the ovary, stigma, and style. The ovary is generally the enlarged portion at the base of the pistil. Ovaries produce ovules that, when fertilized, will develop into seeds. The stigma receives and holds the pollen grains. The style

Figure 1.2 - Flower Parts



connects the stigma with the ovary and helps to guide the germinated pollen grain to the ovules in the ovary.

The male part of a flower is the stamen. It is composed of the anther and the filament. The anther holds the pollen, and the filament supports the anther and connects it to the flower.

The sepals and petals are vegetative (or non-sexual) parts of the flower. The sepals are the outer covering of the flower bud and are known collectively as the calyx. Sepals protect the stamen and pistil when the flower is in the bud stage. The collective term for the petals is the corolla. Petals are often brightly colored. They protect the stamen and pistil during the bud stage and attract pollinating insects.

Inflorescence Types

When a flower has more than one bloom per stem, it is called an inflorescence. The common inflorescence patterns of floral plants (Figure 1.3) are :

- solitary (ex. hibiscus, carnation)
- spike (ex. gladiolus)
- raceme (ex. snapdragon)
- panicle (ex. phlox)
- corymb (ex. candytuft)
- compound corymb (ex. throatwort)
- cyme (ex. geranium)
- compound cyme (ex. baby's breath)
- cincinnus (ex. freesia)
- scorpioid (ex. petunia)
- umbel (ex. agapanthus)
- compound umbel (ex. Queen Anne's lace)
- spadix (ex. calla lily)
- catkin (ex. pussy willow)
- head (ex. chrysanthemum, daisy)

Leaf Arrangements

Leaves are arranged on the stems in various ways. The three basic leaf arrangements are alternate, opposite, and whorled (Figure 1.4).

Figure 1.4 - Basic Leaf Arrangements

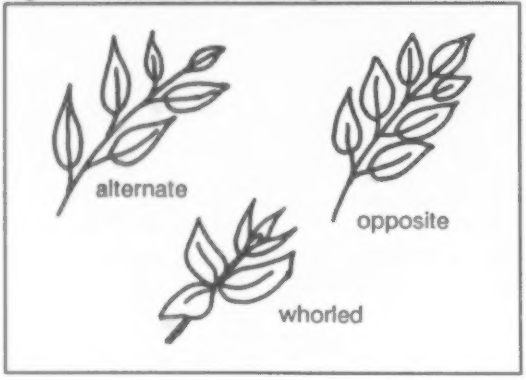


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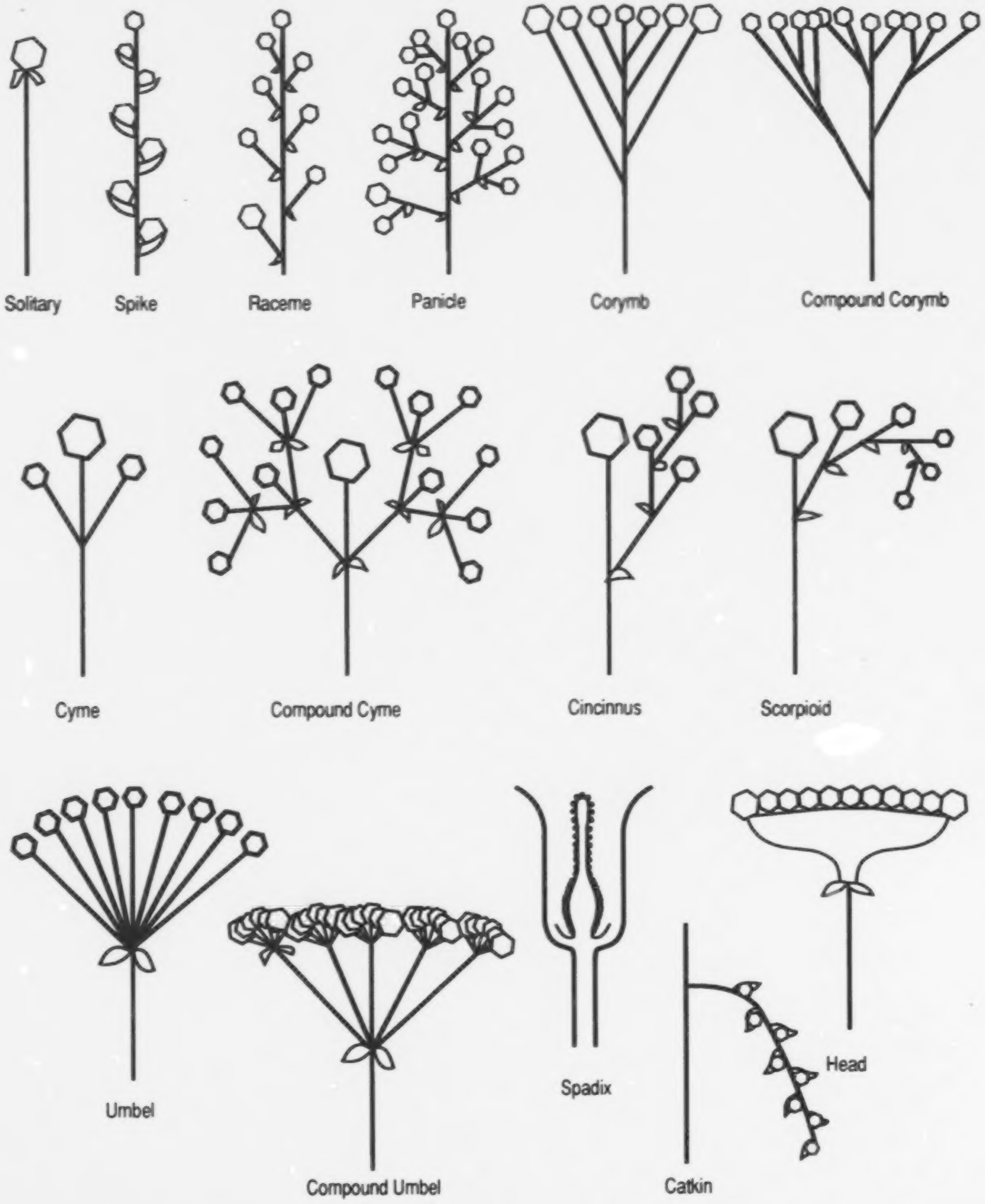
Figure 1.3 - Infloresence Types


Solitary
Spike
Raceme
Panicle
Corymb
Compound Corymb
Cyme
Compound Cyme
Cincinnus
Scorpioid
Umbel
Compound Umbel
Spadix
Head
Catkin

When only one leaf is attached to any one node of the stem the leaf arrangement is said to be alternate. Roses are a good example of a plant commonly used by florists that has alternate leaf arrangement.

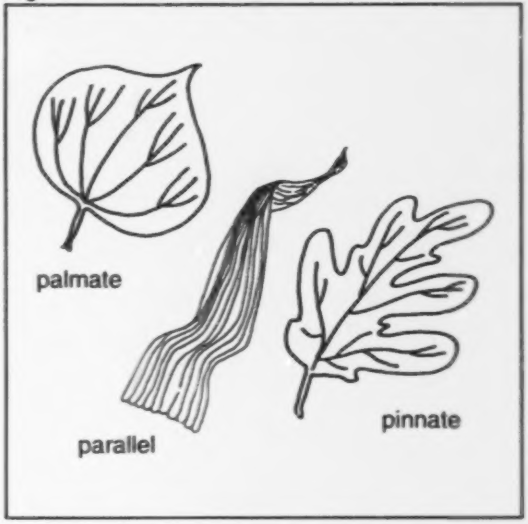
When two leaves are attached to a node the leaf arrangement is opposite. Carnations, for example, have opposite leaves.

When three or more leaves are attached to any one node in a whorl or circle around the stem, the leaf arrangement is said to be whorled. Lemon verbena and sweet woodruff have whorled leaves.

Venation Types

The patterns of the veins on leaf blades are referred to as venation. The three major types of venation are palmate, parallel, and pinnate (Figure 1.5).

Figure 1.5 - Leaf Venation



In palmate venation the veins are spread out from the base of the leaf in a shape that resembles the palm of the hand with the fingers spread. Galax, which is one of the more common types of cut green foliage, has leaves with palmate venation.

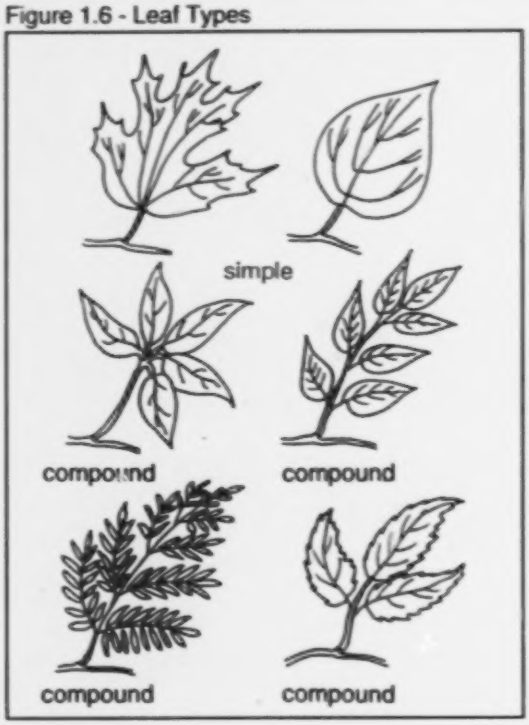
In parallel venation the veins on the leaf are parallel to each other. The lily is a frequently used cut flower with parallel venation.

Pinnate venation has one main vein running the length of the blade of the leaf with side veins branching off of it. A good example of a plant with pinnate venation is salal or lemonleaf.

Leaf Types

Leaf types may be either simple or compound (Figure 1.6). A simple leaf has only one blade. If a leaf has more than one blade, it is known as a compound leaf. The smaller blades that make up the compound leaf are called leaflets. Rose leaves are compound leaves.

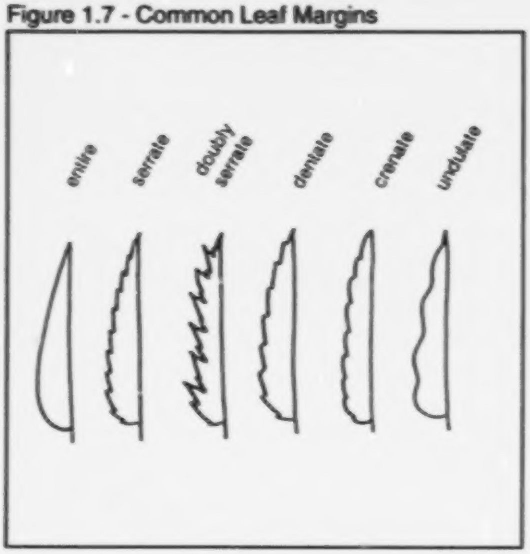
Figure 1.6 - Leaf Types



Common Leaf Margins

The very edge of the blade is called the margin. Some of the common margins are entire, undulate, serrate, doubly serrate, dentate, and crenate (Figure 1.7).

Figure 1.7 - Common Leaf Margins



Annuals, Perennials, and Biennials

Plants that come up from seed, bloom, set seed, and die in one year are referred to as annuals. A good example of an annual is the cineraria. Some plants are grown as annuals, but they are not TRUE annuals and can be referred to as tender perennials. These plants would continue growing if they were brought inside from the elements. Geraniums are tender perennials.

A perennial is a plant that comes up year after year, usually dying back to the ground and regenerating from the base.

A biennial comes up from seed, grows for a year, dies back, and blooms the second year.

Summary

Higher plants are very complex, and their roots, stems, leaves, and flowers vary greatly. The large and sometimes subtle differences between these plant parts are used to differentiate and identify plants.

Credits

Wells, Judith A.; Janet Anderson. *Greenhouse Operation and Management.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.

Rodekohr, Sherie; Debi Waeckerle. *Landscaping and Turf Management.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.

Lesson 2: Identifying Plants

Workers in a flower shop need to know the names of the plant materials they work with. Customers will expect employees to be familiar with the uses of plants and cut flowers and how to care for them.

Plants Used in Floristry

The plants that a florist uses are divided into four basic groups: cut flowers, cut foliages, flowering potted plants, and potted green plants or foliage plants. Some florists also sell bedding plants in the spring.

Plant Names

A plant may have many common names, some peculiar to a particular region. Common names are often confusing because two different plants may have the same common name. For example, several different plants have the common name of creeping Charlie.

Carolus Linnaeus, a Swedish botanist, developed a two-name system for naming plants. He gave all plants two Latin names as their scientific name. The first part of the scientific name is known as the genus or generic name. All the plants that have the same generic name belong to the same genus. These plants are all closely related to each other and share common characteristics.

The second name he gave plants is the species or specific name. All plants of the same species look almost exactly alike. Within a species, plants are often broken down into varieties. The variety name is called a cultivar, or cultivated variety.

The generic name is usually a noun. The generic name is sometimes given to honor an early botanist. In a number of cases, the generic name has come to be the common name, as is the case with the eucalyptus plant, whose generic name is *Eucalyptus*.

The species name is an adjective. The species name is often a description of some characteristic of the plant or gives geographical information about where the plant occurs naturally.

Plants that are related and have similar flower structures are grouped into families. The Asteraceae (daisy) family is the largest of all plant families.

When scientific names are written, they are either underlined or in italics. The generic name is always written first and begins with a capitalized letter. The species name is last and begins with a lowercase letter. For example, the scientific name for the cut flower commonly known as the carnation is *Dianthus caryophylus*.

Taxonomists are scientists who identify and classify plants.

Cut Flowers

Listed in Table 2.1 are some of the cut flowers commonly found in flower shops.

Table 2.1 - Common Cut Flowers

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Alstroemeria aurantiaca	alstroemeria lily, Peruvian lily	pink, yellow, orange, white, lavender	year-round	bunches of 10 stems	not usually one color, but will have spots or flecks of another; very ethylene sensitive

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Anthurium andraeanum	anthurium, flamingo lily	white, red, pink, orange	year-round	25 stems or single	storage in low temperatures may cause bracts to turn black; ideal storage temperature is above 45°F
Antirrhinum majus	snapdragon	pink, yellow, white, purple, orange, red, burgundy	year-round	bunch of 10 stems	good line flower; very ethylene sensitive
Astilbe x arendsii	astilbe	white, pink, red	March through December	10 stems	used as a filler flower; requires lots of water; dries well
Callistephus chinensis	China aster	light and dark pink, white, blue, lavender	summer	bunch of 10	often used as mass flowers
Cattleya	cattleya orchid hybrid	purple and white with yellow or purple throat	year-round	singly	very long lasting; some are fragrant; used for corsages
Celosia cristata	cockscomb	red, yellow, pink, orange	year-round	10 per bunch	long lasting and dry easily
Chamelaucium uncinatum	waxflower	white, purple, lavender, pink	December through May	bunch	good filler flower; ethylene sensitive
Cymbidium	cymbidium orchid	yellow, pink, white	year-round	singly or spray	long-lasting; good corsage flower
Delphinium elatum	delphinium	white, blue	spring, summer	bunch of 10	has a tendency to drop florets; good line flower in an arrangement
Dendranthema frutescens	Marguerite daisy	white, yellow	year-round	25 stems	flowers last longer than foliage; remove foliage before arranging

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Dendranthema x morifolium	florist's chrysanthemum, pompon mum, football mum, fuji mum, spider mum	yellow, purple, lavender, bronze, white	year-round	singly or 10 stems per bunch	will shatter easily; used for funerals and large arrangements
Dendrobium	dendrobium	white, purple	year-round	in sprays of 10 stems	used for corsages; good wedding flower
Dianthus caryophyllus	carnation	pink, red, white, purple, yellow, orange (can be purchased in blue and green if stem dyed)	year-round	bunch of 25 stems	long-lasting flower; very versatile, used in arrangements and corsages
Dianthus caryophyllus nana	miniature carnation	pink, red, white, purple, yellow	year-round	bunch	long-lasting and versatile
Erica carnea	spring heather	pink, lavender, white	winter, spring	bunch	used as a filler flower
Freesia x hybrida	freesia	yellow, white, lavender, pink	winter, spring	10 stem bunch	often used for wedding bouquets
Gardenia jasminoides	gardenia	white	year-round	box of 3	VERY fragrant, but have a tendency to discolor or bruise easily; used for wedding bouquets and corsages
Gerbera jamesonii	gerbera daisy, Transvaal daisy	pink, white, orange, red, peach, yellow	year-round	singly	may need to wire stems to keep them from twisting
Gladiolus x hortulanus	garden gladiolus	red, yellow, white, purple, pink, blue	year-round	bunch of 10 stems	tips may need to be snapped out; order early so they will be open good line flower for arranging

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Gypsophila elegans	baby's breath	white is the most popular color, although it also comes in pink	year-round	bunch	a mainstay in the florist shop, used as filler in arrangements, corsages, and wedding designs
Hyacinthus orientalis	hyacinth	blue, white, pink, lavender, yellow	November through April	5 stems per bunch	very fragrant; work well in spring arrangements; individual florets used in corsage work
Iris x xiphium	Dutch iris	dark blue, light blue, white, yellow	year-round	bunches of 10	order early so buds can open; ethylene sensitive
Leucanthemum x superbum	shasta daisy	white	year-round	singly	have a tendency to shatter if a few petals fall out
Liatris spicata	liatris, blazing star	lavender, white	year-round	bunches of 10 stems	good line flower
Lilium sp.	Oriental lily, stargazer	pink, white, white with pink markings	year-round	bunch of 5 or 10	be sure to remove anthers, since they stain the petals badly when they open
Lilium hybridum	Asiatic lily	red, yellow, white, pink, orange	year-round	10 per bunch	be sure to remove anthers, since they stain the petals badly when they open
Limonium sinuatum	statice	purple, mauve, white, yellow, blue	year-round	bunch	very long lasting; good filler flower
Matthiola incana	flowering stock	purple, white, pink, peach, lavender	January through October	10 stems per bunch	good line flower; very fragrant

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Narcissus pseudonarcissus	daffodil	yellow, white, ivory	winter, spring	10 stems per bunch	do not store with other flowers immediately after arrival because sap will be released which will shorten the vase life; sap release ends after about 6 hours
Paeonia lactiflora	peony	pink, red, white, bi-colors	May through July	10 stems per bunch	petals shatter easily once flowers are fully open
Paphiopedilum x hybrid	ladyslipper orchid	green, yellow, brown, burgundy, white	year-round	individually or 10 stems per bunch	water can cause spotting on petals; used for corsages and weddings
Phalaenopsis	phalaenopsis (butterfly) orchid	white, purple	year-round	singly	used for corsages and wedding work
Polianthes tuberosa	tuberose	white	spring, summer, fall	bunches of 10 stems	very fragrant; best used in corsage and wedding designs
Protea sp.	protea	white, purple, pink, orange	year-round	singly	dramatic and unusual flower
Rosa x hybrida	sweetheart rose, floribunda rose	red, pink, lavender, white, yellow, peach, orange, bi-colors	year-round	bunches of 25 stems	smaller than the hybrid tea rose but longer lasting
Rosa x hybrida, Class Hybrid Tea	hybrid tea rose	red, pink, lavender, white, yellow, bi-colors, peach, orange	year-round	bunches of 25 stems	most popular of all flowers
Stephanotis floribunda	stephanotis	white	year-round	box of 25 stems	very fragrant; must wire individual florets or use special stephanotis stems

Scientific Name	Common Name(s)	Color(s)	Availability	Unit	Special Notes
Strelitzia reginae	bird of paradise	orange	year-round	singly	dramatic tropical flower
Tagates sp.	marigold	yellow, orange, and gold	May through October	10 stems per bunch	used in mixed summer arrangements
Tulipa hybrid	tulip	red, pink, white, yellow, purple, orange, bi-colors	spring, winter	10 stems per bunch	stems will grow as much as 2" when cut
Zinnia elegans	zinnia	yellow, red, orange, white, pink, lavender	May through October	10 stems per bunch	may need to be wired for use in arrangements since the stem is hollow just below the flower

Cut Foliages

In addition to cut flowers, cut foliages are also important to the florist trade. They are greens that have been selected mainly for their longevity as cut plants. Table 2.2 is a listing of some of the more popular cut foliages.

Table 2.2 - Popular Cut Foliages

Scientific Name	Common Name	Availability	Unit	Special Notes
Asparagus asparagoides	smilax	year-round	6 strings per bag	need to keep in a plastic bag
Asparagus densiflorous 'Sprengeri'	sprengeri, asparagus fern	year-round	bunch	often has thorns; good filler foliage
Asparagus macowanii	Ming fern	year-round	bunch	delicate filler foliage
Asparagus setaceus	plumosa fern	year-round	bunch	light and feathery foliage
Asparagus virgatus	tree fern	year-round	bunch	good filler foliage for roses in dozens
Buxus sempervirens	boxwood	year-round	bunch	must be stored in water
Camellia japonica	common camellia	year-round	bunch	has very shiny, dark green leaves

Scientific Name	Common Name	Availability	Unit	Special Notes
Chamaedorea sp.	jade	year-round	25 stems per bunch	needs to be kept in moist box; has a broader leaf than the emerald
Chamaedorea sp.	emerald	year-round	25 stems per bunch	lasts well; best used as background for large arrangements
Cordyline terminalis	ti leaf	year-round	10 stems per bunch	easy to shape leaves for special effects; good for background foliage
Cytisus scoparius	Scotch broom	year-round	bunch	easy to bend into curves
Eucalyptus polyanthemos	silver dollar gum, eucalyptus	year-round	1½ pound bunch	strongly medicinal-scented eucalyptus foliage may be used fresh or in dried arrangements, after being preserved in glycerine and water
Galax urceolata	galax	year-round	25 stems per bunch	covers floral foam well
Gaultheria shallon	salal, lemonleaf	year-round	bunch	used for funeral designs and large arrangements
Hedera helix	English ivy	year-round	bunches	young growth lasts best if sprayed with a sealant; often used for bridal bouquets
Lycopodium sp.	lycopodium, princess pine, club moss	year-round	10 per bunch	striking, somewhat stiff line foliage
Myrtus communis	myrtle	year-round	bunch	small leaves; good for helping to establish lines in arrangements
Nephrolepsis exaltata	Boston fern, sword fern, flat fern	year-round	25 per bunch	used in funeral work
Pittosporum tobira	pittosporum	year-round	bunch	good filler foliage; may be varigated
Podocarpus macrophyllus	podocarpus, yellow podocarpus	year-round	bunch	also called yew podocarpus because it looks like yew
Rumohra adiantiformis	leatherleaf fern, baker fern	year-round	25 stems per bunch	probably the most commonly used cut green foliage

Scientific Name	Common Name	Availability	Unit	Special Notes
Ruscus sp.	ruscus	year-round	bunch	Italian ruscus, a finer foliage, is more popular for arranging
Vaccinium ovatum	florist's "huckleberry"	year-round	bunch	good foliage for large arrangements
Xeropyllum tenax	bear grass	year-round	bunch	long, graceful stalks add movement to an arrangement

Flowering Potted Plants

In addition to fresh arrangements, florists also sell flowering potted plants, usually as gifts. Some are available only during special seasons of the year (for example, poinsettias are sold for Christmas and Easter lilies for Easter), while others are available year-round. A flower shop employee must be able to identify the more popular flowering potted plants. Table 2.3 lists some common flowering potted plants.

Table 2.3 - Common Flowering Potted Plants

Scientific Name	Common Name	Characteristics	Growing Conditions
Ageratum houstonianum	ageratum	grows from 6" to 24" tall in compact mounds; fluffy, tufted blossoms may be lavender, white, or pink, but they are usually a blue color	does best in full sun with average soil; a common garden flower
Begonia x semperflorens-cultorum	wax begonia	mounded form; available in bronze or green leaf forms; single or double blooms in white, pink, or red	requires medium light, humidity, and moisture
Begonia x tuberhybrida	tuberous begonia	giant double begonias may resemble camellias or carnations; white, pink, red, yellow, or orange flowers	grows well in low light
Calceolaria crenatiflora	pocketbook plant	has a profusion of brightly colored blooms that resemble a pouch or lady's pocketbook; red, yellow, and orange flowers	needs medium light, humidity, and moisture
Catharanthus roseus	vinca, Madagascar periwinkle	flower colors include pure white, white with red eye, rosy pink, and pink with rose eye	needs minimal care; garden flower

Scientific Name	Common Name	Characteristics	Growing Conditions
Clematis x Jackmanii	clematis	vining plant that can reach 8' to 10' in height; brittle stems; large flowers that are white, pink, red, light blue, dark blue, and white/pink bicolor	likes high to medium light; perennial border vine
Coleus x hybridus	coleus	grown for its very colorful leaves; flowers are not significant	should be protected from full sunlight; keep soil slightly moist; garden plant
Cyclamen persicum	florist's cyclamen	has heart-shaped leaves that are dark green with light green blotches around the edge; relaxed petals on long stems rising above leaves; white with a pink center or "eye", solid white, pink, red, lavender, or purple in color	requires a nighttime temperature of 65°F or less and bright light
Dendranthema x morifolium	florist's chrysanthemum	flowers are all colors except blue; most popular potted plant	requires medium light, humidity, and moisture
Euphorbia pulcherrimma	poinsettia	red, pink, white, and marbled colorful bracts surround yellow "true flowers"	needs bright light, with medium humidity and moisture
Exacum affine	German (Persian) violet	maximum height of 2' or less; small leaves; mass of small blue, purple, or white flowers with yellow stamens and a delicate fragrance	requires medium light, humidity, and moisture
Hemerocallis	day lily	leaves are long and strap-like; flowers are large and trumpet-shaped; flowers are red, pink, maroon, lavender, purple, orange, melon, yellow, pastels, and bicolors	most varieties grow best in full sun; common garden perennial
Hibiscus rosasinensis	hibiscus	shrubby plant with large, glossy green leaves; single or double flowers; single flowers are funnel-shaped with a long, pronounced stamen; red, pink, yellow, orange, or white flowers	needs bright light, low humidity, and medium moisture
Hippeastrum x hybridum	amaryllis	has large strap-like leaves; produces as many as four to six huge (5" to 9" across) lily-like flowers in clusters; may be red, white, pink, or salmon in color	needs medium humidity, bright light, and high moisture

Scientific Name	Common Name	Characteristics	Growing Conditions
Hydrangea macrophylla	French (florist's) hydrangea	woody, shrub-like stems; green, glossy leaves with distinct veins; large, rounded flower heads, often 5" to 8" wide, composed of many four-petaled flowers that are blue, pink, or white in color; colors of blue or pink depend on acidity of the soil	likes LOTS of water; needs bright light and high humidity
Impatiens wallerana	impatiens	waxy, deep green leaves; single or double flowers may be white, purple, pink, orange, salmon, and red	grow best in full sun and prefer well-drained soil; garden flower
Kalanchoe blossfeldiana	kalanchoe	succulent foliage with strong, compact growth; large bunches of flowers that are orange, red, pinks, or yellow in color	requires bright light and medium humidity and moisture
Lilium longiflorum	Easter (trumpet) lily	tall single stem; green, strap-like leaves with parallel venation; large, white trumpet-shaped blooms at top of stem, often 3 to 5 blooms per stalk	needs bright light, high humidity, and medium moisture; best to remove the stamens as they will discolor the trumpet
Lobularia maritima	sweet alyssum	plants are short (up to 8" tall) and spreading (up to 12" across); plants are covered with tiny fragrant flowers that smell like honey; flowers may be rose, white, pink, or purple	likes full sun; keep well watered until blooms appear; garden flower
Pelargonium x domesticum	regal (Lady Washington) geranium	foliage edged with pointed teeth; very showy blooms, usually up to 2½" in diameter, with a dark blotch; white, pink, lavender, and wine red flowers	require cool temperatures to bud
Pelargonium x hortorum	(zonal) geranium	round-shaped leaves, sometimes with rings or "zones;" white, pink, salmon, or red flowers	hardy; prefer full sun and tolerate heat and humidity; remove old flowers for best growth
Pelargonium peltatum	ivy geranium	ivy-shaped leaves; trailing growth habit (good for hanging baskets); flower colors include pink (single and double blooms), red, lavender, and white with red edge	requires good light but does better without direct sun; do not over water

Scientific Name	**Common Name**	**Characteristics**	**Growing Conditions**
Petunia x hybrida	common garden petunia	can grow up to 12" tall; flowers are possible in many colors and color combinations and may be plain-edged or ruffled	likes full sun; garden flower
Primula malacoides	fairy primrose	rounded leaves, in rosettes; flower clusters with very fragrant 1½" blooms in purple, lavender, pink, mauve, or white	best to discard after blooming, because it is difficult to rebloom; prefers cooler temperatures (not over 80°F)
Primula x polyanthus	primrose, primula (polyanthus)	long strap-shaped leaves grow in a low rosette 10" to 12" across; flowers rise from the center of the rosette; yellow, orange, maroon, blue, white, or red flowers; some flowers have a yellow eye	does best at cooler temperatures (not to exceed 70°F), with bright indirect light and good soil moisture; can rot easily
Rhododendron sp.	azalea	small shrub (up to 18" tall); one-inch long, dark green, egg-shaped leaves; funnel-shaped flowers at the end of the stems; white, red, or pink in color	water often--will not tolerate drying out; needs high humidity and bright light; keep at as cool a temperature as possible
Saintpaulia ionantha	African violet	short stem topped by a rosette of round or partially oval leaves with a "hairy" surface; white, blue, purple, pink, and red flowers	requires bright light (without direct sun), high humidity, and medium moisture; will thrive under florescent lights
Salvia splendens	salvia	bushy plants have long, dense flower spikes; veins of leaves are indented and leaf margins are somewhat toothed, but not sharp; flower colors include brilliant red, rose, pink, salmon, lilac, violet, purple, and white	grows well in full sun; garden flower
Schlumbergia bridgesii	Christmas cactus	segmented leaves with rounded margins; has orange, white, red, and bright pink blooms at the end of the stem	prefers cooler temperatures, filtered light, high humidity, and evenly moist soil; to re-bloom, provide cool (55°F) nighttime temperatures or short days (9 hours) from mid-September to mid-October to flower 2½ months later

Scientific Name	Common Name	Characteristics	Growing Conditions
Schlumbergia truncata	Thanksgiving cactus, crab (claw) cactus	densely branching, mainly pendent stems with thin, flat, medium green segments 1½" long with a prominent green rib; white, pink, red, or orange blooms at the end of the stem	should not be exposed to full summer sunlight; needs high humidity and medium moisture; must have short days in order to bloom
Senecio cineraria	dusty miller	grown for its foliage, large, coarse leaves that are silvery-white in color; daisy-like flowers	prefers cool temperatures; needs medium light and moisture and high humidity; garden flower
Senecio x hybridus	florist's cineraria	many long-lasting, bright-colored and bicolored flowers, in blue, white, pink, or magenta and often with contrasting eyes, cover the top of the plant	easy to grow; prefers a cool environment
Sinningia speciosa	gloxinia	may have single or double flowers; has profuse large, open, bell-shaped flowers above thick, velvety foliage; jewel-like red, purple, white, or pink blooms	keep evenly moist and shaded from direct sunlight; needs low humidity
Solanum pseudocapsicum	Jerusalem cherry	shrub with dark to mid-green leaves; white flowers and small bright orange/red fruit; fruit ripen through green to yellow to orange/red and are not edible	grow best in bright indirect light and cooler temperatures (around 65°F); do not keep too wet
Viola x wittrockiana	pansy	5-petaled flowers in a wide range of colors with or without "face markings"	keep soil moist and well-drained; likes full sun to partial shade; garden flower

Potted Foliage Plants

In addition to flowering potted plants, most florists also offer potted foliage plants for sale. Some customers prefer a green plant because it will last longer than the flowering potted plant or cut flower arrangement. Green plants may be sold individually, with some larger ones as specimen plants, or they may be planted in groups as in dish gardens. Table 2.4 lists common potted foliage plants.

Table 2.4 - Common Potted Foliage Plants

Scientific Name	Common Name	Characteristics	Growing Conditions
Aechmea chantinii	bromeliad	leaves are gray-green with silvery white crosswise stripes that originate at the center of the plant; leaves can be up to 18" in length; flowers rise from the center and are long-lasting	prefers full sunlight, a temperature of around 60°F, and high humidity; should be watered thoroughly, but given time to dry between waterings
Araucaria heterophylla	Norfolk Island pine	resembles a small pine tree	needs good light in order to keep its symmetrical growth habit
Aglaonema commutatum	aglaonema, Chinese evergreen	upright growing with waxy-green leaves that are oval and taper to a point; some varieties are variegated and have narrower leaves than the green variety; as the lower leaves get old and drop off, the stems resemble bamboo canes	one of the best plants for growing in low light; requires medium humidity and moisture
Aphelandra squarrosa	zebra plant	dark shiny green leaves with prominent ribs and veins of ivory.	bright light is best, but no direct sun; should be watered well, then allowed to dry slightly
Brassaia actionophylla	schefflera, umbrella plant	leaves radiate from a central point, which causes the plant to resemble an umbrella; oval-shaped leaves are light green and shiny; becomes a large plant under the right conditions	prefers bright, but not direct, sunlight; needs medium humidity and high moisture; susceptible to spider mites and should be checked regularly for this pest
Caladium x hortulanum	fancy-leaved caladium	produces red, pink, white, green, or multi-colored leaves	grows best with warm temperatures and ample water
Chamaedorea elegans	parlor palm	graceful, umbrella-like form looks like a small palm tree; maximum height is 3'; grows very slowly	does best in a warm location with high humidity and filtered sunlight; needs medium moisture

Scientific Name	**Common Name**	**Characteristics**	**Growing Conditions**
Chlorophytum comosum	spider plant	long drooping leaves with runners that extend from the center with little plants on the end of them which are easily started into new plants (good hanging plant); can be either solid green, green with a white stripe down the middle of the leaf, or green with the leaves edged in white	tolerates low light, but does better with medium light; needs to be kept well watered; requires medium humidity
Cissus rhombifolia	grape ivy	good plant for hanging baskets; leaves resemble grapevine leaves	needs medium light, humidity, and moisture for best growth
Codiaeum variegatum pictum	croton	very brightly colored foliage plants with colors ranging from bright red to yellow	should receive at least 5 hours of sunlight a day for best growth; needs medium humidity and moisture
Crassula argentea	jade plant	thick succulent leaves are rounded and on rubbery upright stems	tolerates low light levels, but will not tolerate overwatering
Dieffenbachia maculata	spotted dumb cane	calcium oxalate in the sap can cause the throat and mouth to swell so that one is unable to talk; single-stemmed plant that can reach a height of 6' to 8'; large leaves have prominent veins; may have spots on the leaves or leaves that are almost completely yellow with an edging of dark green	grows best in a sandy soil containing peat moss; soil should not be kept too moist, because the plant is subject to stem rot; needs medium light and humidity
Dracaena cincta	red edge dracaena, Madagascar dragon tree	eventually becomes a large plant; leaves are dark green edged with red, long, and pointed on the end	tolerates low light, but needs constant moisture and warm temperatures
Dracaena fragrans 'Massangeana'	corn plant dracaena	long, light yellow-green leaves with stripes of whitish yellow that give the look of a corn plant; eventually becomes a large plant	tolerates low light; requires constant moisture and warm temperatures

Scientific Name	Common Name	Characteristics	Growing Conditions
Echinocactus sp.	barrel cactus	stems are globular, but will get taller as it grows older; does not flower until it is 3 years old; has trumpet shaped blooms	needs a winter rest below 50°F to promote flowering; while resting, water only enough to keep the soil from getting too dry; needs intense lighting; over watering should be avoided
Epipremnum aureum	golden pothos, devil's ivy	very popular houseplant for hanging baskets and totem poles with green leaves that resemble the philodendron but that are lighter green in color and often flecked with yellow; good climber	requires medium light, humidity, and moisture for best growth
Euphorbia splendens	crown-of-thorns	stems are brown with thorns on all sides; leaves are bright green, from 2" to 2½" long near the growing tips; flowers are in clusters with bright red or yellow bracts	full sun and warm temperatures are required
Ficus benjamina	Benjamin fig, weeping fig	pointed, shiny stems that arch; grows to be a tree in the tropics, but is used as a large indoor plant at four to six feet	prefers bright, indirect light; needs medium humidity and moisture; often drops its leaves if conditions are not ideal
Ficus elastica 'Decora'	'Decora' rubber plant, rubber tree	becomes quite a large plant	grows best in medium light; drops leaves if light is too low; tolerates low humidity but does best in medium humidity and moisture
Ficus pumila	creeping fig, rubber plant	very small climbing or creeping plant with heart shaped leaves that are less than 1" long; often grown as a trailing plant or ground cover	needs medium light, humidity, and moisture; must NEVER be allowed to dry out
Fittonia verschaffeltii	nerve plant	dark green leaves with veins of red, pink, or white	prefers warm temperatures, high humidity, and good light, but no direct sun; roots should be kept moist, but not too wet
Gynura aurantiaca 'Sarmentosa'	purple passion plant, velvet plant	vining plant with soft purple velvet leaves	needs a 65°F nighttime temperature, bright light, and evenly moist soil

Scientific Name	Common Name	Characteristics	Growing Conditions
Heptapleurum arboricolum	dwarf schefflera, dwarf octopus tree	similar in general form to the larger schefflera, but is much smaller and more compact, with darker green and smaller leaves; long, thick leaflets radiate from a central point	requires bright light but no direct sun
Hoya carnosa	wax plant	vining plant with thick, waxy leaves	needs medium humidity and moisture; tolerates low light, but needs more light in order to bloom; does not like to be moved; should be kept cooler and drier In winter
Justicia brandegeana	shrimp plant	flower spikes droop and look like shrimp; leaves are 1" to 3" long, oval, and slightly hairy	needs to be kept trimmed to maintain a compact growth habit; prefers bright light with some direct sun and a temperature of around 65°F; do not overwater--the top two-thirds of the soil should be allowed to dry out between waterings
Maranta leuconeura kerchoviana	prayer plant	green leaves with brown spots up the mid-rib; has the unusual habit of the leaves closing upright at night	requires medium light and high humidity; soil should be kept moist, but allowed to dry between waterings
Monstera deliciosa	cutleaf philodendron, Swiss cheese plant	very large, dark green leaves that are split	requires medium light, humidity, and moisture; grows best with a nighttime temperature of 65°F
Neoregelia carolinae 'Tricolor'	tricolor blushing bromeliad	leaves originate from a center in a rosette shape; when flowering, the center will change color, usually to a brilliant red, for 2 to 3 months	requires bright light with some direct sun and high humidity; rosette does best when filled with water; drain water and add fresh once a month
Nephrolepis exaltata	Boston fern	fronds up to three feet long; fluffy ruffles, a variety, has dense curling leaflets; hanging plant	requires medium light and high humidity and moisture for best growth
Opuntia sp.	prickly pear cactus	many flattened segments, branching frequently, with thorns that are hooked on the ends; pear-shaped fruits	needs direct sun and warmer temperatures; allow top half inch of potting mixture to dry out before watering

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Scientific Name	Common Name	Characteristics	Growing Conditions
Peperomia argyreia	watermelon peperomia	rounded succulent leaves that are dark green with silvery white strips; leaves and stems are succulent	does not tolerate overwatering; grows best in medium light
Peperomia caperata	emerald ripple peperomia	heart-shaped, dark green leaves have a corrugated, wrinkled surface; propagated from leaf cuttings; flowers are white spikes	grows well under moderate light conditions and at normal room temperatures; requires high humidity during the growing season; easy to overwater
Peperomia obtusifolia 'Variegata'	variegated peperomia	light green, succulent leaves edged with white	needs low moisture and does not tolerate overwatering; requires medium light and high humidity for best results
Philodendron scandens oxycardium	heartleaf philodendron	rapid-growing vine that is best adapted to a hanging basket, but is also popular on totem poles; deep-green, glossy leaves that are heart-shaped	prefers a sandy soil; does best when grown in indirect light, with high humidity and medium moisture
Pilea cadierei	aluminum plant	bluish-green leaves with a silvery-white stripe	requires high humidity and medium moisture; will tolerate lower light, but needs medium light to develop its best color
Pilea involucrata	friendship plant	fleshy, deeply quilted leaves that are almost circular; margins are scalloped; leaves are dark green with purple undersides	prefers semi-shade and no bright light; should never get too wet
Pilea microphylla	artillery plant	very small, light green, rounded leaves; very easily propagated by snapping off a cutting and placing it in moist soil	tolerates lower light levels, but needs high humidity
Pilea nummulariifloria	creeping Charlie	fast growing with tiny leaves; leaves are green, quilted, and almost circular; good for hanging	prefers semi-shade and no bright light; should never get too wet
Plectranthus mummularis	Swedish ivy	good hanging plant with bright green leaves	rich soil and medium light are needed for best growth

Scientific Name	Common Name	Characteristics	Growing Conditions
Sansevieria trifasciata	gold-edged snake plant, mother-in-law's tongue	very stiffly erect; Hahni or bird's nest sansevieria is a dwarf, compact plant, with dark green leaves speckled with white; two other common types have tall, long leaves, one edged with yellow with the center of the leaf being dark green and the other with solid dark green leaves	tolerates dry conditions and low light; takes large amounts of abuse
Saxifraga stolenifera	strawberry plant	leaves grow in an almost circular rosette formation; deep green with toothed margins, silvery veins, and reddish-purple undersides; runners have little plantlets on the ends	should be given a small amount of direct sun every day
Sempervivum tectorum calcareum	hen and chicks	low growing succulent, about 1-3" tall; rosette of leaves with smaller plants around the outside of the larger plant	requires bright sun and warmer temperatures; water when top of soil is dry; may require daily watering in summer
Spathiphyllum clevelandii	peace lily	white flowers that resemble anthuriums and bright green leaves	well adapted to low light, but if flowers are desired higher light intensities are needed; will not tolerate drying out
Syngonium podophyllum	nephthytis, arrowhead	leaves are about 3 inches long and are arrowhead-shaped	grows best in bright, indirect light; soil should be kept barely moist; prefers a daytime temperature of 75° to 85°F
Tolmiea menziesii	pickaback plant	green, soft, hairy leaves; new plants will grow at the base of mature leaves	needs medium light, humidity, and moisture for best growth
Zebrina pendula	wandering Jew	colorful reddish purple leaves with silvery green stripes; hanging plant	tolerates low light, but for maximum growth and best color, medium light, medium humidity, and uniform soil moisture are needed

Summary

Florists use a wide variety of cut flowers, cut foliage, flowering potted plants, and foliage plants in their business. Successful employees must be able to identify plants, know their uses, and know how to care for them.

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Lesson 1:
Plant Processes Affecting Shelf Life

In order to work with flowers and plants, understanding some of the basic plant growth processes is necessary.

Five basic processes are involved with plant growth: photosynthesis, transpiration, cellular respiration, water absorption, and translocation. Plants depend on these processes for growth. In order to ensure that plants grow properly, the florist should understand how these processes affect optimum growth.

Photosynthesis

Photosynthesis is the process by which green, living plants, in the presence of light, convert carbon dioxide and water into simple sugar, which is food and energy for plants. The formula is illustrated in Figure 1.1.

Simplified steps in the photosynthesis process - Carbon dioxide gas enters the plant through the stomata located on the leaves. Water is absorbed by the hair roots and then enters the leaves' pores by the xylem tissues. Light strikes the chlorophyll, which is present in the chloroplasts in the mesophyll cells of the leaves. Light energy is absorbed, enabling a chemical reaction to take place between carbon dioxide and the hydrogen in the water. Glucose, a simple sugar, is produced and then transported by the phloem tissues to other parts of the plant. Oxygen is released as a by-product through the stomata. Water is also released when the stomata open.

Photosynthesis and Shelf Life

When a flower is cut from a plant, its root system is taken away, which interrupts the photosynthesis cycle that is responsible for creating a plant's energy. A flower needs additional energy to finish opening, so another source of energy should be provided by the florist. This energy is usually added in the form of a preservative, which contains sugar that the flower utilizes to produce food. If some source of energy is not provided, the shelf life of plant materials will be shortened.

The Transpiration Process

Transpiration is the process by which gases and water vapor move from an area of higher concentration to one of lower concentration. This process usually takes place on the leaf surface, although it also occurs on the stems and petals. Fresh flowers usually have a higher concentration of water vapor than the air around them. Therefore, water vapor from the flowers moves out into the surrounding air. If this happens faster than the flowers are able to take up water through their stems, they will wilt. Transpiration is greatly influenced by environmental factors such as light, temperature, relative humidity, and wind. The florist should regulate transpiration by keeping plant materials cool, in an area of high humidity, and out of drafts.

Cellular Respiration

Cellular respiration is the controlled breaking down of glucose, releasing the energy for plant growth, absorption, translocation, and many other metabolic processes occurring within the cell. Excess glucose molecules are often combined and stored in the form of starch in vacuoles within the cells. Nearly all respiration occurs in the presence of oxygen or O_2 (aerobic respiration). However, some cellular respiration may occur for a short time without oxygen (anaerobic respiration). The formula for aerobic respiration is illustrated in Figure 1.2.

The primary importance of respiration is that it enables the plant cell to release energy that is then used in many energy-requiring chemical reactions within the cell. In addition, respiration releases carbon dioxide (CO_2) and water (H_2O) into the atmosphere. Cellular respiration is a continuous

Figure 1.1 - Photosynthesis Formula

$$\underset{\text{(carbon dioxide)}}{6\,CO_2} + \underset{\text{(water)}}{6\,H_2O} \xrightarrow[\text{light energy}]{\underline{\text{chlorophyll}}} \underset{\text{(glucose)}}{C_6H_{12}O_6} + \underset{\text{(oxygen)}}{6\,O_2}$$

Figure 1.2 - Cellular Respiration Formula

$C_6H_{12}O_6$	+	$6\ O_2$	----->	$6\ CO_2$	+	$6\ H_2O$	+	Energy
(glucose)		(oxygen)		(carbon dioxide)		(water) dioxide)		

process occurring twenty-four hours a day for as long as the organism lives.

Water Absorption and Translocation

Translocation is the movement of water soluble organic materials such as sugars and proteins and inorganic nutrients within the plant. The vascular system, consisting of xylem and phloem tissue, is the means by which translocation occurs. Water translocation is primarily upward from the roots through the xylem, while food (glucose) translocation through the phloem is from the leaves to the rest of the plant, including the root system.

A cut flower has been deprived of the roots that take up moisture and nutrients from the growing media, while a potted plant has intact roots, which allows the plant to continue to carry out all plant processes.

Ethylene Gas

Ethylene gas is produced by certain mature fruits such as apples, foliage, aging flowers, decaying plant materials, and the incomplete combustion of oil and gas in heaters. It is odorless and colorless and will cause the premature aging (senescence) and decaying of flowers.

Summary

Photosynthesis, transpiration, cellular respiration, water absorption, and translocation are the basic processes carried out by plants as they grow. Florists should understand these processes in order to be able to ensure that plants are in the best possible condition.

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Lesson 2:
Processing Cut Plant Materials

While working in the flower shop, it is extremely important to be aware of how to extend the life of cut plant materials. These items are perishable, and profit can depend on how well a florist is able to preserve the flowers received in the shop.

Evaluating the Quality of Cut Flowers

When receiving fresh flowers and greens, carefully evaluate them. Under careful examination, foliage will often show the age of a cut flower many days before the flower itself shows its age. Flowers should be turgid (full of water) and not limp or wilted. Colors should be vibrant and typical for the variety. Older flowers often fade, with the edges of the petals turning brown. Roses should be in tight bud. Chrysanthemums and other flowers often "shed" or drop petals as they age. Carnations show their stamens when they are old. Check all flowers and foliage for insects and mechanical injury.

Receiving Flowers from the Wholesaler

Unpack the flowers immediately upon receipt. If the shipment cannot be unpacked at once, at least open the boxes and uncover the flowers because heat can build up in the box. Be sure to inspect all flowers for damage or problems. If they show signs of gray mold (botrytis) or premature aging, notify the wholesaler or supplier immediately. Also remove any packing materials from the boxes.

Tools are often needed for unpacking. A hammer should be used to remove the wooden bar inserted into boxes for stability. A box cutter is handy for cutting cardboard cartons and scissors for cutting plastic bands from the cartons.

Once the quality of the material is checked, it is wise to check the flowers received against the bill to make sure the shipment and the charges are correct. Be sure to note any shortage on the invoice. Phone the wholesaler as soon as possible if the shipment is incorrect.

After unpacking the flowers, cut the stems and place them in fresh water at a temperature of 100° to 110°F with a preservative.

For best rehydrating, cut the flower stems under water to help prevent air blockage in the stem, which can cause wilting. Remove the foliage from the portion of the stem that will be underwater. If the foliage remains, it will rot and can clog the stems of the flowers, inhibiting the uptake of water. Remove dead and damaged flowers because they can produce ethylene gas, which will contribute to premature aging.

Preservatives will greatly increase the life of cut flowers. To ensure the best quality of the flower and customer satisfaction, preservatives should be used at all levels (grower-wholesaler-retailer-customer). Loosen bunches and plastic sleeves to facilitate the flower in opening. NEVER leave the flower out of water. Keep them in their buckets until they are to be placed in an arrangement. The buckets should be taken to the design table.

Customer education about the proper care of cut flowers, whether arranged or loose, is also extremely important. Care cards should be attached to each arrangement and plant that is sold. If possible, a sample pack of preservative should also be included.

Storing Cut Plant Materials

Most cut foliage should be wrapped to prevent desiccation and stored "dry" in the refrigerator. Foliage should never be stored with flowers and should be placed in a separate cooler if possible. Foliage such as croton, podocarpus, and eucalyptus should be put in water.

The temperature most conducive for cut flowers is 34° to 40°F. It is extremely important to clean the cooler often, discarding dead or dying flowers. Recut the stems and place them in fresh water with a preservative. Sanitation is of utmost importance. Scrub buckets often and rinse them with a weak bleach solution. A mixture of one part bleach to ten parts water is adequate.

Using Preservatives

Preservatives add nutrients to the water solution. When a flower or foliage is cut, it no longer has the ability to take up nutrients. Preservatives attempt to fill this void. In addition to providing nutrients, preservatives often contain a disinfectant to help reduce or inhibit the growth of bacteria and to freshen the water. Some preservatives contain a surfactant that helps to break the stem's seal, allowing water to enter.

Processing Completed Designs

Most commercial floral foams contain a preservative. When designing in floral foam, designers completely soak the floral foam. After the foam is secured in the container, additional water is added to come to the top of the container. After completing the arrangement, more water is added. Water should be added to the arrangement daily. Store the arrangement in a cool refrigerator, considering the needs of the different plant varieties. Most flowers are kept best at 34°F and 80 percent relative humidity.

Summary

Flower shop employees must know how to properly handle, store, and care for cut plant materials. If they do not, the life of fresh cut flowers and foliage may be shortened, and they may quickly become unsalable, which would decrease the shop's profits.

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Lesson 3: Caring for Potted Plants

Since florists sell potted plants in addition to cut flowers and arrangements, employees need to be aware of the proper care for these plants.

Evaluating Potted Plants

Unpacking potted plants when they come into the flower shop is not as simple as it may sound. An employee should do several things. One of the first steps is to carefully inspect the foliage of potted plants for signs of disease, insect damage, or damage from shipping. If any disease or insects are noted, isolate the plants immediately and notify the supplier. If there is physical damage that will cause the plant to be unsalable, notify the supplier. Also, check the stage of development of the flowers since customers expect longevity as well as a color display in potted plants. Most growers know the best stage at which to ship plants, but occasionally a florist may receive plants that are too "green" or too mature.

Maintaining Potted Plants

Unwrap, unbox, and unsleeve potted plants immediately after receiving them from the wholesaler. Inspect foliage for signs of insects, disease, or physical damage. Remove all dead or damaged parts, and water the plants if they are dry. Give them enough water so that the water drains through the bottom of the container. Take special care in watering plants that have plastic container liners or foil around them so that they do not sit in water. The container liners may need to be removed until the plants have finished draining. For display purposes, do not place the plants in a cold draft or close to a heater. Remove any dead or yellowing foliage at least once a week. How often a plant is watered will depend on the specific plant's needs, the season, and the temperature of the shop.

Care Tags

Most florists maintain a good supply of care tags, which are specially printed tags with pictures of the individual plants and a paragraph or two on the basic care of the plant. The information includes the plant name, the optimum light conditions, the frequency of watering required, and any other special instructions. Attach a care tag to each plant to ensure that customers know how to properly care for their purchases.

Summary

Like cut plant materials, potted plants need to be cared for correctly in order to remain salable. The flower shop employee therefore needs to know and practice the proper care of these plants.

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Lesson 1: Floristry Tools and Supplies

Many specialized tools are used in floral shops. It is necessary to be able to identify them as well as maintain and safely use them.

Floristry Tools and Their Uses

Most flower shops provide each designer with a personal set of tools. Tools should only be used for their designed purpose or they may be rendered useless. Figure 1.1 illustrates common tools used in floral designing.

The floral knife is a basic tool every designer should become accustomed to using. Using the knife may seem awkward at first, but with practice the user will become proficient. Knives are the tools of choice for cutting stems because scissors will mash the ends and impede the uptake of water.

Knives may either be folding or similar in shape to kitchen paring knives. Inexpensive knives with plastic handles may be used, but they usually do not last very long. This type of knife is good for cutting foam, but it is not recommended for use on fresh stems.

Wire cutters are chiefly used for cutting wire. The ones with spring action handles are the easiest to use.

Ribbon scissors have long slender blades and are used for cutting ribbon and fabric.

Floral shears have serrated blades. They are designed for cutting heavier material, such as wire and stems.

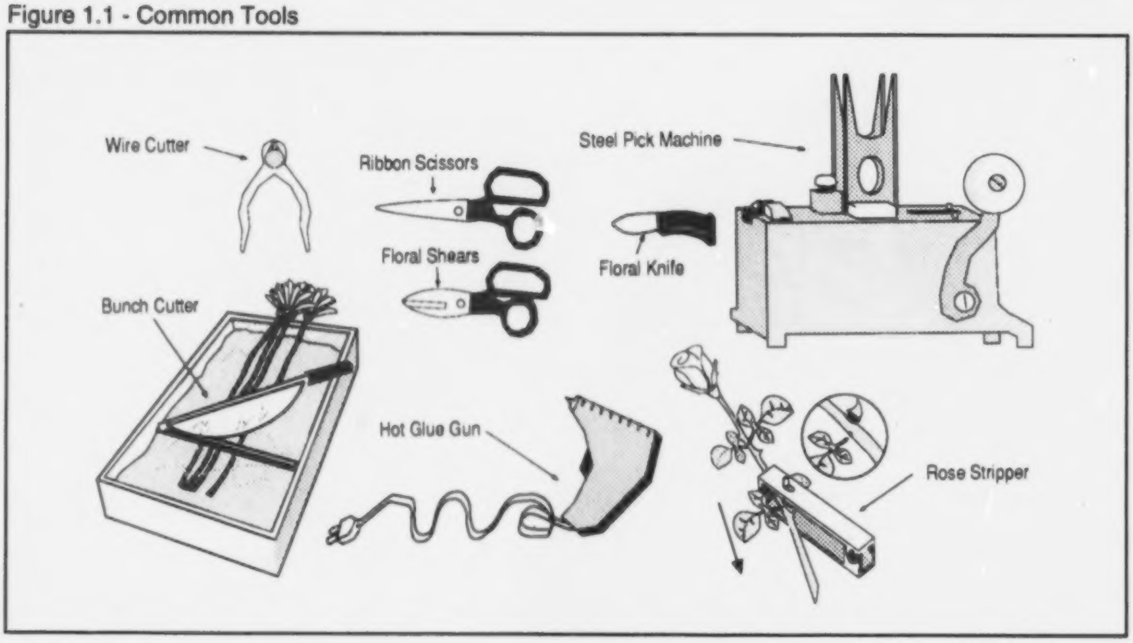
A rose stripper removes thorns from roses.

A steel pick machine attaches steel picks to stems and other objects to allow for insertion into floral foam. It is chiefly used with silk and dried materials. The stem or material to be picked is held against a steel pick at the end of the machine. When the handle is pulled down, the clamps of the steel pick are bent around the material being bound.

A bunch cutter enables the florist to cut bunches of flower stems at once. Some have a large sharp blade on a stand. Others are set up in a tub so that the stems may be cut under water.

The electric glue gun has many uses and is widely used by florists. A glue stick is pushed into the back of the gun. When the gun is plugged in, it

Figure 1.1 - Common Tools



becomes hot and melts the glue. The melted glue is then pushed out the tip, usually by the trigger of the glue gun. Glue guns can use hot or cool melt glues. Almost anything can be joined together with glue as long as the object to be glued is dry, not too smooth, and not too porous. Glue dries very quickly, so it is very efficient and helpful in design work. The main disadvantage is that the glue will not hold at temperatures below 40°F. Never lay a glue gun on its side because the glue can run inside and ruin it.

Floristry Supplies and Their Uses

Many different supplies are used in floristry. The most commonly used floristry supplies will be discussed in the following paragraphs. Figure 1.2 shows some commonly used supplies.

There are several different kinds of wire. Florist wire comes in 18" lengths and is either green enameled or silver annealed (sometimes called bright). It also comes in different weights, or gauges, ranging from #16 to #30. The larger the gauge number, the lighter or smaller the weight of the wire. Florist wire is used to bind materials together and strengthen stems. It is most frequently used in making corsages, boutonnieres, and wedding bouquets.

Paddle wire is a continuous wire wrapped on a wooden paddle. It also comes in weights ranging from #16 to #30. Its main use is for garlands.

Chicken wire comes in 12" and 18" widths in 150 foot rolls. It is used to cover floral foam in large arrangements, helping to stabilize the stems.

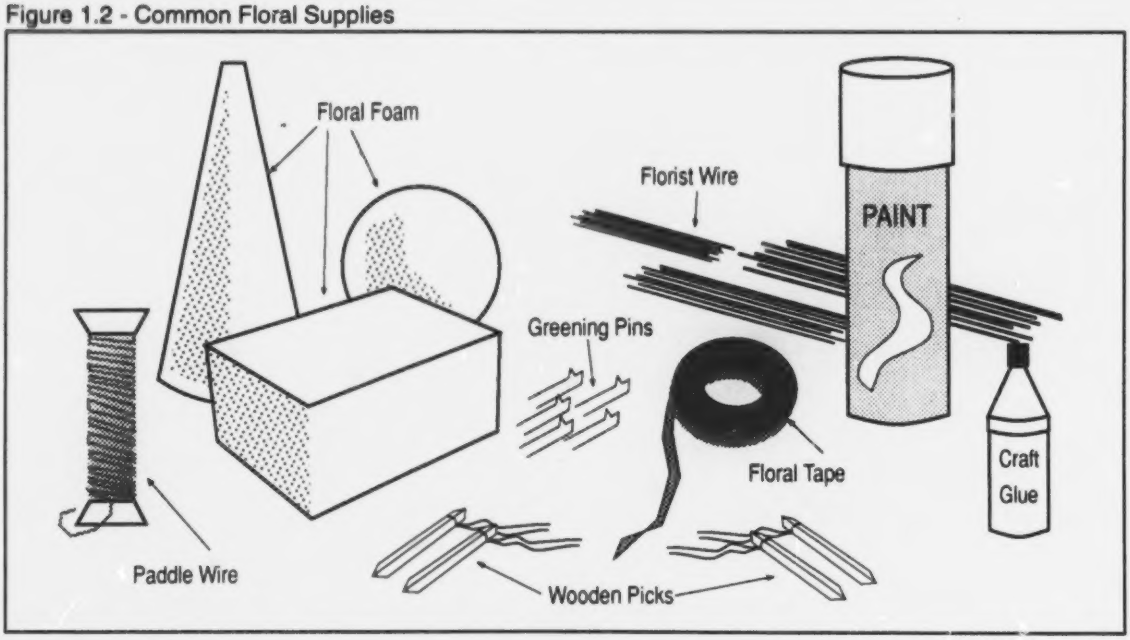
Two types of tape are used in floral designs. Floral tape is waxed crepe paper that will stick to itself when stretched. It comes in many colors, but white, moss green, and brown are used most frequently. Floral tape is used to cover wires, to help hold individual flowers together, and to cover any exposed flower stems. It comes in widths of ¼", ½", and 1". The one-half inch width is the most commonly used size.

Waterproof tape is used to secure floral foam in containers. It may be green, white, or clear and is available in widths of ½" and ¼".

Florists also use several glues or adhesives.

Pan glue is available in bags of beads. It will melt in an electric skillet at a temperature of 275°F. Stems and other materials to be adhered can be dipped into pan glue and inserted where desired.

Figure 1.2 - Common Floral Supplies



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When using a glue gun, cool melt glue is commonly used on fresh flowers, foliage, and balloons. Hot melt glue is used for silk and dried arrangements, fastening accessories together, fastening ribbons, and bonding holding devices to containers. Hot melt glue sticks can cause severe burns.

Floral adhesive (rubber cement) is used in fresh designs. It will adhere even when exposed to extremely humid conditions. However, floral adhesive takes quite a bit longer to dry than glue.

Paints (aerosol sprays) are used to enhance flowers or accent colors. They come in a wide variety of colors. Regular floral spray is available in opaque colors. Tints give transparent colors.

Dyes can also be used to change the colors of flowers. Two major kinds of dyes are used by florists. Flowers are immersed in dip dyes. A major disadvantage exists in using dip dye, though. When dipped flowers used in a corsage or boutonniere become damp, the colors can run onto fabrics and clothing.

Stem dyes are absorbed by flower stems. The cut stem ends are placed in the dye and remain there for several hours while they absorb the color.

Corsage and boutonniere pins are used to secure corsages and boutonnieres to garments. Corsage pins are 2" long and have either a pearl head or a white head. Boutonniere pins are 1½" long with either a white or black head.

Metal picks are used in the pick machine to help insert stems and other materials into floral foam. They are available in a variety of lengths in bundles of 100, in a case of 2,000.

The chief use of wooden picks is attaching bows to potted plants. They may also be used as stems for clusters of dried or silk flowers. Wooden picks come in green or natural colors in lengths of 2¼" to 6." One end of the wooden pick is pointed and the other has a fine wire wrapped around it. This wire is wrapped around the stem and then inserted into the foam. If it is inserted into wet floral foam, the moisture causes the pick to swell and thus secures it in the foam.

Floral foam is used in fresh, dried, floral, and silk arrangements. The foam secures flowers and materials in arrangements. Floral foam for fresh flowers and foliage is wettable and will soak up water. Floral foam for dried and silk arrangements is more firm and will not soak up water. Both types can be cut with a knife or a piece of florist wire.

Anchor pins have four short plastic prongs attached to a flat base. An anchor pin is glued, flat base down, into the bottom of a shallow container to help hold the floral foam in the container.

Greening pins, or fern pins, are U-shaped metal pins usually used for securing moss to floral foam. They may also be used for securing greens to Styrofoam™, as when securing evergreens to a wreath frame.

Hyacinth stakes are tall green stakes that were originally used to stake blooming plants, but that can also be used to help support flowers in a very large arrangement. They are available in lengths of 12", 18", and 24".

Water picks are plastic tubes with rubber lids that have holes in them. They can be filled with water, and stems are then pushed through the holes. Water picks are useful when fresh flowers are inserted in items where they will not have water, such as a sympathy wreath or a foliage plant. They are often used with boxed roses as well.

Orchid grass, or Easter grass, is shredded paper used to cushion flowers, usually orchid corsages, in a box. Its common colors are green and white.

Corsage and rose boxes are made especially for packing corsages and unarranged flowers. The boxes can be white cardboard or clear plastic. They come in a variety of sizes, ranging from small boxes for boutonnieres to large boxes for wedding bouquets.

Sure stick is an extremely sticky florist clay. It is primarily used to hold dry floral foam in a container.

Foils come in two main types. Lightweight foil is colored on one side and silver on the other. It is more easily torn. Polyfoil is a thicker foil. It has a thin sheet of plastic between its layers and is much sturdier than light-weight foil. The primary use of foil is for covering the pots of flowering potted plants.

Clear plastic or cellophane corsage bags are available in various sizes. The smaller ones are used for covering corsages and boutonnieres, and the larger ones are used for wedding bouquets and even flower arrangements.

Enclosure cards and envelopes may have the flower shop's name and logo on the back. Used to include greetings from the sender, cardettes look like plastic pitchforks. Their major use is to hold enclosure cards in arrangements and plants. They come in different stem lengths and in packs of 100 or in a case of 1,000.

Care and handling tags can be purchased pre-printed from the wholesaler. They contain information that will help customers care for their plant or arrangement. The care tags for potted plants and foliage plants will usually have a picture of the plant printed on them.

Chenille stems are large pipe cleaners. They come in a wide variety of colors and are used to attach bows to arrangements, to secure pew bows for weddings, and to create faces and figures in novelty arrangements.

Candle stakes are green plastic cups with prongs on the base that can be inserted into floral foam to hold a candle in securely. They can be purchased in various sizes to hold different sizes of candles.

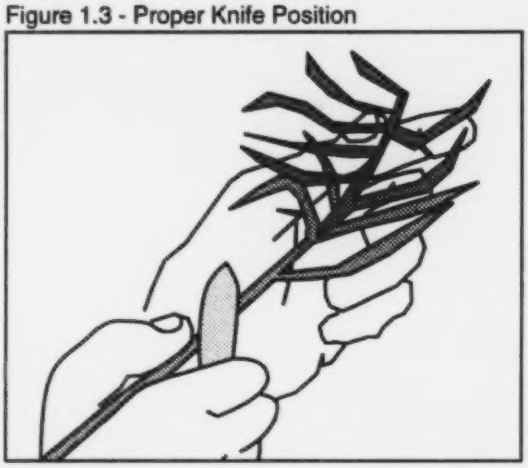
Other specialized products are available for use in the floral trade. For example, sprays are available that can be misted on some of the more delicate flowers to form a shield thats helps prevent the loss of water and so allows them to retain their freshness. For foliage, products such as Plant Shine® can be sprayed on to make leaves glossy.

Safety Precautions

Some of the florist's tools can inflict injury on those using them, so a few precautions are necessary.

To properly use a knife, the designer usually keeps the knife in one hand. Always use a good quality, **sharp** knife. You are less likely to cut yourself with a sharp knife than a dull one. Hold the blade of the knife between your thumb and forefinger, with your forefinger against the top of the blade. Cut toward yourself at an angle. The knife should be directed just below your thumb so you can avoid cutting yourself. It may take some practice to become proficient at using the knife. When using the knife, it is important to pull the knife through the stem to form a slanted cut (Figure 1.3).

Figure 1.3 - Proper Knife Position



When using other cutting tools, make sure that a tool designed for that particular purpose is being used. For example, use wire cutters to cut wire and ribbon scissors to cut ribbon. Always watch to keep fingers from being cut.

Hot glue guns become VERY hot and can cause painful burns. As with all electrical appliances, be sure to keep the glue gun away from water.

Steel picks have sides that are razor sharp. Care must be taken when handling them.

Summary

The florist must learn to use a large number of special tools and supplies in order to create floral designs. Safety precautions must be observed when using some of these tools in order to avoid injury.

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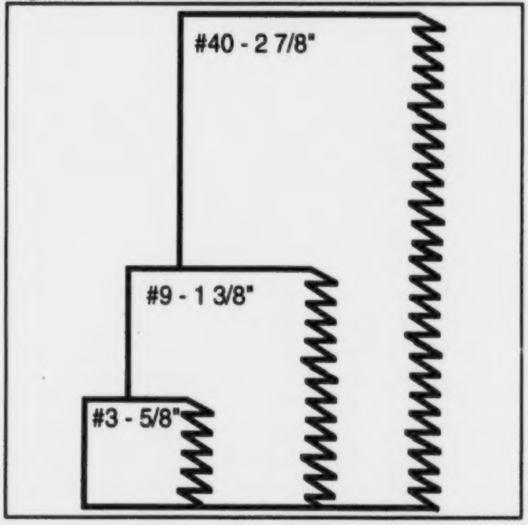
Lesson 2: Constructing Bows

Florists commonly use bows in their design work. The corsage is the florist's main creation requiring a bow; however, funeral pieces, potted plants, and some floral arrangements often include a bow as well.

Ribbon Fabrics and Widths

Ribbon comes in many widths and materials. The most common sizes are #3, #9, and #40 (Figure 2.1). The most common material is single-faced satin. For corsages, #3 (⅝" wide) is the width preferred by most florists. Very narrow ribbon, such as ⅛" can also be used for corsages, but it requires many more loops, and thus more ribbon. Florists commonly use #9 (1⅜") for flowering potted plants and #40 (2⅞") for funeral pieces and wedding pew bows. A popular size for wedding arrangements is ⅛" ribbon.

Figure 2.1 - Common Ribbon Sizes



While satin is the least expensive and most commonly used fabric, other ribbon materials include velvet, lace, burlap, cotton, wired ribbon, and various novelty ribbons. Ribbon comes on cardboard spools called bolts. There are usually 100 yards of #3 satin ribbon on a bolt, 100 yards of #9, and 50 yards of #40. It is important to be able to judge how many bows each bolt of ribbon will produce, especially when filling orders for weddings and special occasions where a specific ribbon has been requested. If a bolt only makes five bows and the order requests seven, you will need another bolt of the same ribbon.

Bow Making Tips

Gather all materials before beginning bow construction. Determine which ribbon size and fabric type will enhance the corsage, arrangement, etc. Customers may also specify which ribbon they want.

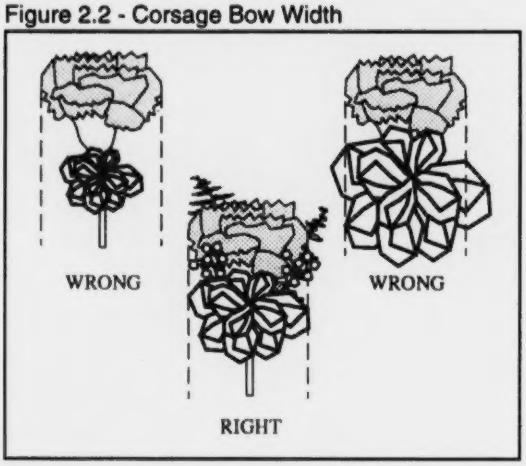
Most ribbons are single-faced, with a right and "wrong" side. With satin ribbon, the right side will be shiny, the wrong side dull. Keep the right side out.

Use ribbon directly from the bolt instead of cutting the ribbon prior to beginning the bow.

Hold the bow in one hand while feeding the ribbon into it with the other hand. The bow should be held with the thumb and middle finger. The thumb stays on the top center, while the finger acts like a shuttle as the ribbon is worked back and forth from underneath.

Make the bow in proportion to the arrangement. The bow should be an accessory rather than the center of interest; it should not dominate the design. For corsages, the bow should be the width of the flowers (Figure 2.2). The bow should

Figure 2.2 - Corsage Bow Width



complement an arrangement. It is best not to make bows with large, loose loops. They crush easily and do not hold their shape well.

A bow's tail length is usually measured in proportion to the width of the ribbon. Generally, the tail should be no longer than the longest loop of the bow. Longer tails may be used in bud bases, rose vases, or on football mum corsages.

A bow without a center loop is used when it will be tucked under a flower or placed deep inside an arrangement.

Bows to be used on church pews are constructed from #40 ribbon and tied off with heavy (#18) wire. The bows are then taped, and the wire is shaped to fit over the pew. If aisle candles are used, tie the bow off with ribbon and then tie the bow onto the aisle candle. Foliage may be added to the candle and ribbon.

Many florists make bows in advance, especially for holidays and weddings. They are usually stored on Styrofoam™ sheets and kept away from humidity and dust so that the labor will not be wasted.

By practicing, a person can become proficient at making bows. Use various sizes of ribbon while practicing.

Constructing a Bow

The steps in making a bow seem complicated at first, but with some practice, the flower shop employee will soon become adept. Different florists have various methods for constructing a bow, but once the general steps have been mastered, others can be learned more easily. If a shop has a particular way of constructing bows, it is best to learn to make bows that way. Designers are usually willing to instruct others in their methods, but be sure to learn to make the bows before the rush of the holidays.

When working with single-faced ribbon, it is important to always keep the right side out. The ribbon must be twisted after each loop is made. Begin with a tail or length of ribbon about 2" long. Loop the ribbon over the left thumb (right thumb if left handed). Be careful not to pull too tight or you might not be able to get your thumb out after completing the bow!

Now twist the ribbon one turn under the thumb, gripping the ribbon between the thumb and middle finger. Make a loop in the ribbon to be the first loop in the bow, bringing the ribbon between the thumb and middle finger, again twisting the ribbon, and form a loop on the other side. The length of the loops will depend on the use of the bow. For a corsage, the bow needs to be in proportion to the flowers. If the bow is too large, it will become the focal point of the corsage and overpower the flowers. If it is too small, it will be hidden and of no decorative use.

Continue making loops until the desired number of loops is reached. Generally, corsage bows have three loops on a side. If the ribbon is the main focus, such as on a box or gift, more and larger loops may be used. After making the last loop, leave another tail to match the first one. Cut the ribbon tails at an angle.

Now tie off the ribbon. Bows may be tied off with wire, chenille, or more ribbon. If the bow is going to be tied into a corsage, it is generally easiest to tie it off with ribbon to avoid having to retape and cover the bare wires. In a potted plant or funeral piece, the bow is often tied off with a wired wooden pick that is then used to insert the bow into the soil or arrangement.

Slip the tie under the thumb, then carefully tighten the bow. The bow may now be inserted into the corsage, arrangement, or plant.

Jiffy Bows

Some pre-constructed bows are now on the market. They are usually called jiffy or pull bows. With the pull of a small string, the loops are formed and a perfect bow is made with little effort. These bows are best used for packages, wedding pews, and potted plants. They are considerably more expensive than bows made in-house from satin ribbon.

Summary

In order to complete their designs, florists often use bows that they construct themselves from ribbon that comes in a number of different materials and widths. While constructing a bow may be difficult at first, it becomes easier with practice. In addition to making their own bows, florists may also purchase ready-made bows.

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Lesson 3: Containers

Containers are available in many different sizes, shapes, and colors. Prices for containers also vary. However, price should not be the ultimate criterion for selecting containers, but rather how useful and easily deliverable the containers will be.

Container Styles

Containers are available in several basic styles. Bowls and trays are the most commonly used containers. They are usually used for centerpieces and longer, low arrangements. Cylinders are tall vases used to arrange long-stemmed flowers and vertically styled arrangements. Urns or compotes are footed containers. They can be used for an arrangement that does not require much space. Novelty containers are usually used for holidays or special occasions, as in the case of baby vases. A few examples of containers are shown in Figure 3.1.

Container Varieties

Containers are constructed of various materials. Plastic containers are used most often. The newer plastic containers on the market are much more attractive and often do not look inexpensive. They are available in a wide range of colors and shapes. Glass is also popular with florists, especially for tall cylindrical containers and bud vases. Glass containers are usually clear, green, or frosted. However, newer varieties on the market are gold or silver coated.

Ceramic containers, while more expensive, are usually desirable for permanent arrangements. They are available in a variety of colors, sizes, and shapes.

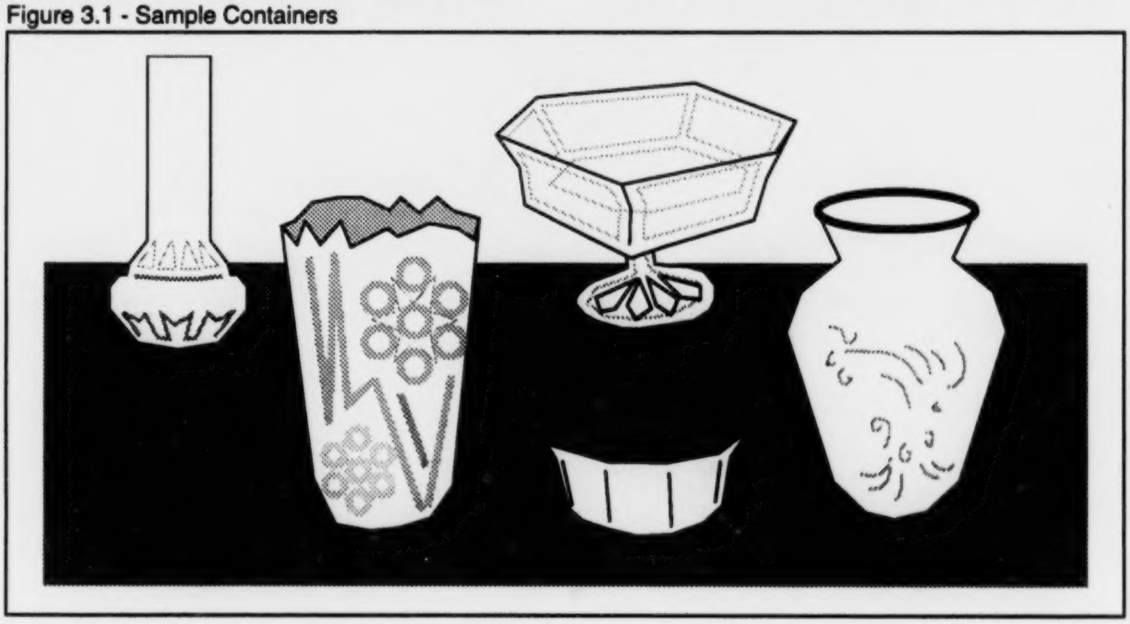
Wicker baskets have become more popular in recent years. The major disadvantage to using a wicker container is that a liner is necessary for a fresh arrangement.

Papier-mâché containers are popular for sympathy flowers. They are temporary containers and are not intended for long use, because they will eventually deteriorate and leak.

Selecting a Container

When choosing a container, consider the size of the finished arrangement. The container and finished arrangement should be in harmony. The final form of the design is often dictated by the container. The color of the container is another important consideration. It should never detract from or draw attention away from the arrangement. The size and weight of the flowers also affect the

Figure 3.1 - Sample Containers



selection of a container. A major consideration is the use of the finished arrangement. A more formal container should be used for a formal dinner party, while a casual basket can be used for an informal occasion. Prices for containers vary and may be a consideration depending on the needs of the customer.

Holding Devices

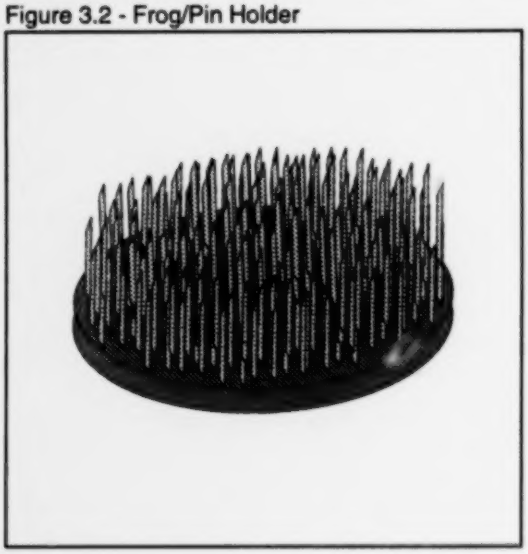
Holding devices secure flowers and materials in the arrangement.

Floral foam is the most frequently used holding device in floral arrangements. It is a soft, lightweight material that is very absorbent. Wet foams are used in fresh arrangements and dry foams in silk and dried floral arrangements. Most containers are manufactured to hold a specific size of foam. Because foams can be cut to fit virtually any container and because of their superior holding properties, they are the first choice of most florists to secure arrangements.

Designers should be familiar with other holding devices as well. Styrofoam™, which is available in white or green, is similar to dry floral foam, but it is coarser and does not cut as easily. It is stronger than floral foam, though. Some florists like to use shredded Styrofoam™ for holding an arrangement, especially a tall cylindrical one.

Frogs, or pin holders, were used before floral foams were invented. Several different styles of frogs are available, but the most common one is metal with many needles or prongs coming up from the bottom. Flower stems are stuck onto these prongs (Figure 3.2).

Figure 3.2 - Frog/Pin Holder



Glass marbles are often used in taller containers to help hold flowers in place. However, it is difficult to transport arrangements in which they are utilized, so the flowers should be arranged where they will be used.

Selecting a Holding Device

Choosing which holding material to use depends on several factors. If the material to be arranged is dried or silk, it will require a different holding device than fresh materials that must be in water. The weight and size of the finished arrangement will also help determine which holding device to use. Very large arrangements need to have sturdy bases. If several blocks of floral foam are used for a sturdier base, chicken wire may be necessary to hold them together. If the flowers used have very thick stems, chicken wire often must be placed over the top of the floral foam to reinforce it.

The type of container may also determine which holding device to use. For example, clear containers do not lend themselves to the use of floral foam. Designers should instead use shredded Styrofoam™, clear marbles, or a grid or lacing of foliage. If a very expensive container is used for an arrangement, then a material like chicken wire obviously should not be used. If the container is papier-mâché, however, chicken wire will work very well. When using shallow dishes, glue anchor pins to the bottom of the container, and push the foam down on the prongs.

If the arrangement is to be transported, the florist needs to make sure that the holding device is very substantial. The use of the arrangement also affects the selection of a holding device. When preparing wedding bouquets for brides and bridesmaids, it is often necessary to use a spray material that seals or locks the flowers into the holding devices, since the bouquets will be carried about, often rather carelessly. Funeral pieces are often transported, so they too need to be securely held together. One professor of floral design used to throw each student's finished funeral piece across the classroom to see how well it would hold up!

Preparing Floral Foam

When using wet floral foam, it is important to soak it properly. Allow the foam to naturally soak up the water; never force it down under the water. When it stops bubbling, the foam is saturated. When placing the foam in the container, leave one inch of foam above the lip of the container to allow enough room to stick some stems in horizontally. For larger stems, leave 1½" above the lip.

After the foam is soaked, it is quite soft and easy to cut with a piece of wire or a knife. Smither-Oasis is a large manufacturer of floral foam and offers several different types for different uses. Springtime® foam is softened and is designed to be used mainly with spring flowering bulbs that have very soft stems. Deluxe foam is sturdier and should be used in larger arrangements and with heavier flowers. Sahara® foam is designed for use in dried and silk floral arrangements. Sahara® is brown and comes in two strengths. Strength II is used in larger arrangements or for flowers with thicker stems.

Floral foam blocks come in standard sizes of 9" x 4" x 4" and are packaged with 48 pieces to a case. They are also available in different shapes, usually specialty shapes, cylinders that will fit standard containers, or shapes for funeral pieces.

When placing floral foam in a container, leave a space between the container and the foam to hold water. This space is called a water well, and it is necessary for watering the arrangement.

Floral foam usually needs to be secured in the container, depending on the size and shape of the container. If the foam is not tightly wedged into the container, secure the foam using waterproof tape. The type of container used usually determines whether waterproof tape is needed. One piece of tape placed across the top of the container is usually adequate. Make sure the sides of the container are clean and dry or the tape will not stick. If securing a large piece of foam, it may be necessary to cross another piece of tape over the first piece. Do not let the tape extend over the sides of the container any more than necessary. To blend with the color of containers, waterproof tape is available in several colors, including green, white, and clear.

Anchoring a Frog to a Container

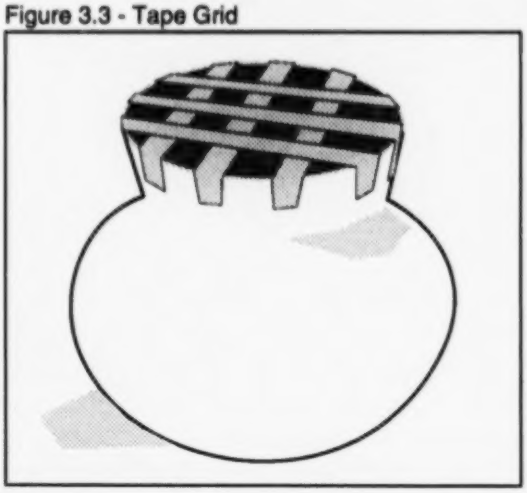
A frog, or pin holder, can be glued to a container with pan melt glue if it is to stay in the container permanently. If not, roll florist clay into a long cylinder, or "snake." Form a ring around the edge of the pin holder with the clay, then press it firmly onto the container. For maximum holding ability the pin holder and container must be clean and dry.

Constructing a Grid

Another holding device used by florists is a grid. To begin constructing a grid, tape several horizontal rows of clear waterproof tape across the top of the container. Then tape several rows perpendicular to the first rows. This procedure will create a grid as illustrated in Figure 3.3. Grids are mainly used with tall cylindrical containers.

Foliage is also commonly used to construct a grid (Figure 3.4). This procedure is also called lacing. Leatherleaf is the foliage most commonly used. However, other foliage, such as huckleberry and tree fern, may be also be used. To construct a grid using foliage, fill the container with water, then remove the leaves that will be under water. Insert

Figure 3.3 - Tape Grid

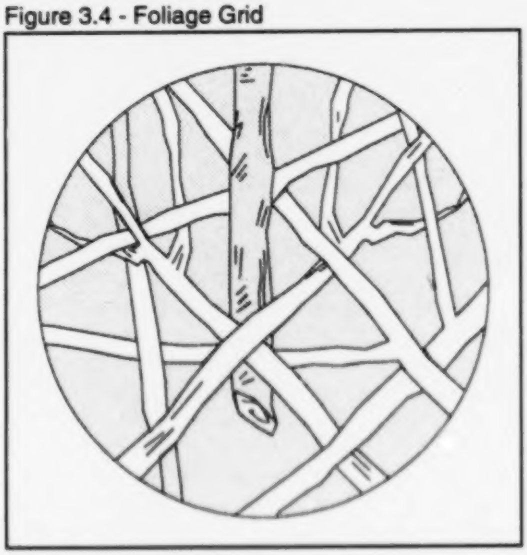


the stems at an angle to create a tight interlocking grid.

Summary

Designers may choose from many different styles, sizes, materials, and colors when selecting the appropriate container to be used for a particular floral arrangement. They must also be familiar with various holding devices in order to utilize the best one for a particular arrangement.

Figure 3.4 - Foliage Grid



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Lesson 4: Wiring and Taping

Several different techniques may be used for wiring flowers for floral designs. In corsages, flowers are taped as well as wired.

Why Wire Flowers?

Flowers are wired for arrangements and corsages. Roses are often wired in arrangements to ensure that they do not develop "bent necks." With other flowers, wire is used to strengthen weak stems or for arrangements that will be transported long distances. Wire is also used for shaping flowers. In corsages, wire is used to replace stems, eliminating the bulkiness of the stem and leaving the flower flexible.

Gauges of Florist Wire and Their Uses

Florist wire is numbered according to its diameter in even numbers in units called gauges. The smaller the diameter, the higher the number of the gauge. The gauges commonly used in corsages are 24, 26, and 28. Roses and other heavy flowers usually require 24 gauge wire. More delicate flowers, such as stephanotis, require 26 and 28 gauge. See Figure 4.1 for examples of flowers and corresponding wire sizes.

Figure 4.1 - Flowers and Corresponding Wire Sizes

Calla Lily	18-20
Gladiolus	18-20
Standard Chrysanthemums	18-20
Stock	18-20
Carnation	20-22
Gerbera Daisy	20-22
Snapdragon	20-22
Tulips	20-22
Pompon Chrysanthemum	20-24
Rose	20-24
Freesia	22-24
Orchids	24-28
Stephanotis	26-28

A heavier wire is available in 18 gauge. It is used in construction work, such as making floral or baby's breath headpieces for weddings, serving as a base for a wrist corsage, or hanging a pew bow at a wedding.

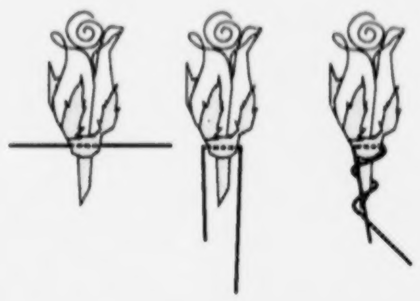
Several important things should be remembered when using floral wire. The lightest gauge wire possible should always be used for body flowers. Using the lightest wire ensures that a corsage, for example, will be as lightweight as possible. Keeping the different gauges separate is also important because design time can be wasted trying to sort out the wire. Devices are sold specifically for storing wire, or one can be constructed by gluing tubes of PVC pipe vertically on a base.

Wiring Methods

Several methods are used to wire flowers. The best method to use will depend on the type of flower as well as its weight and/or size. Experience with wiring flowers will help the florist to determine which method would be the best to use for a particular flower or purpose. Wiring techniques include the piercing method, the insertion method, the clutch method, the hook method, the hairpin method, the stitch method, and the straight-wire method.

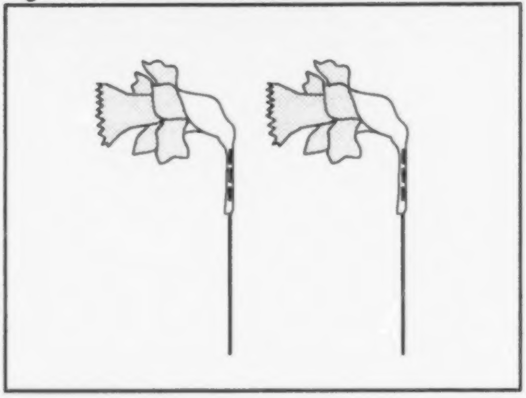
In the piercing method (Figure 4.2), insert the wire halfway through the calyx of the flower, then bend both ends down. Slightly twist the wire together at the end to make wrapping the wires together easier. Roses, carnations, and other flowers with a similarly large calyx are wired with the piercing method.

Figure 4.2 - Piercing Method



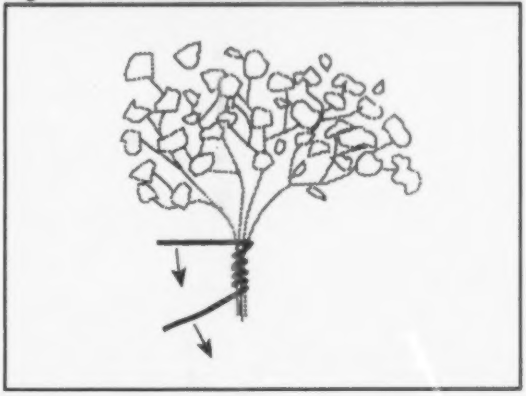
To use the insertion method (Figure 4.3), cut the stem to about 1" in length and insert the wire inside the stem. Push the wire up until it is in the flower head. The wire must NOT be visible from the top of the flower. Daffodils, asters, and other flowers with well attached heads may be wired with the insertion method.

Figure 4.3 - Insertion Method



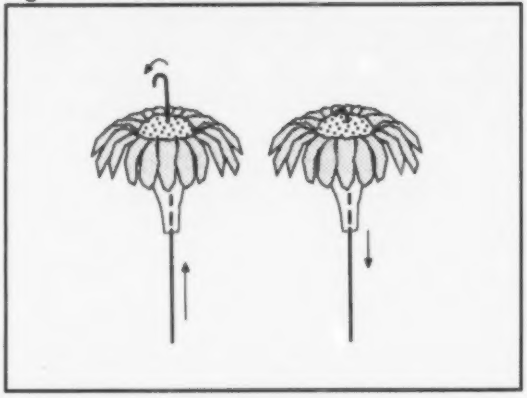
To use the clutch or wrap-around method (Figure 4.4), wrap a light wire around the stem or cluster several times. Then bend the two wire ends down alongside the stem or stems. Filler flowers and other small mass flowers, such as baby's breath and statice, are wired with the clutch method.

Figure 4.4 - Clutch Method



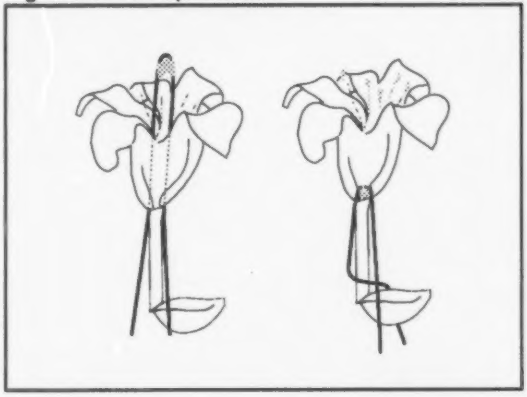
The hook method (Figure 4.5) is similar to the insertion method. When inserting the wire into the base of the flower head, however, push the wire through until it comes out the top of the flower. Make a small hook from this wire, then carefully pull it back down into the center of the flower. Again, this wire must NOT be visible. Chrysanthemums, daisies, and similar flowers with flattened heads, hard centers, and no apparent calyx are wired using the hook wire method. It is also used for any flower that is likely to break off at the head.

Figure 4.5 - Hook Wire Method



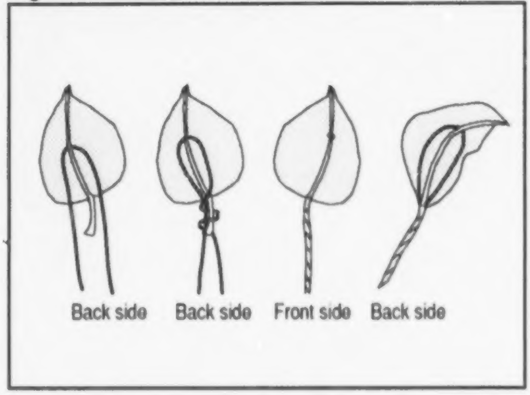
For the hairpin method (Figure 4.6), bend the wire into a large U-shape and insert a small piece of moist cotton into the bend. Pull the wire down into flower, then wrap it around the stem. The hairpin method may be used to wire flowers that have a tubular shape, such as stephanotis.

Figure 4.6 - Hairpin Method



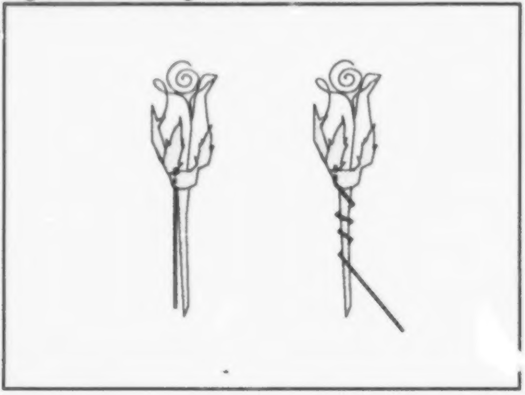
To use the stitch method (Figure 4.7), pass a wire through the back of leaf near the central rib and then through the other side, making a small "stitch." The stitch should be made midway up the leaf blade. Bend the ends of the wire down beside the rib to support the leaf. Wrap one end of the wire around the stem and the other end of the wire to secure it. The stitch method is used for foliage with broad leaves, such as camellia and ivy.

Figure 4.7 - Stitch Method



The straight-wire method (Figure 4.8), or splinting method, strengthens the stems of flowers instead of replacing them. To use the straight-wire method, stick the end of the wire into the base of the flower, then wind it down the stem between the leaves. The straight-wire method is used to support the necks of roses. It is often used for flowers to be arranged in vases.

Figure 4.8 - Straight-Wire Method



Floral Tape

Floral tape, or florist's tape, is crepe paper with a light waxy coating. When stretched, it will adhere to itself. It is used in corsages to cover the floral wire. It secures the wire to the flower stem, tapes flowers together, and holds moisture around the stem ends.

Floral tape is available in quite a few colors, but florists mostly use moss green because it blends well with green foliage. White tape is often used for wedding pieces and brown for dried flowers. Floral tape comes on plastic spools and in several widths, but the most commonly used width is ½".

Using Floral Tape

Hold the flower in the left hand and the tape in the right. Switch the placement of the flower and tape if left-handed. When taping a flower, begin at the flower's calyx, and wrap around it tightly. Turn the flower with the left hand while stretching and pulling the tape at a downward angle with the right hand. The tape should be smooth and not bulky.

Summary

Flowers may be wired or taped for use in floral designs. The designer chooses which wiring method to use based on the type of flower and/or purpose for wiring. Taping is used when constructing corsages.

Credits

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Lesson 5:
Packaging Flowers and Arrangements for Delivery

All products that leave a flower shop should be attractively wrapped. Properly wrapping flowers and arrangements for delivery not only adds to the attractiveness of the product, but also offers protection against physical damage and extreme temperatures during delivery. It allows the delivery person or customer to carry the product more easily as well.

Wrapping and Boxing Cut Flowers for Sale

Cut flowers that have not been arranged and are purchased cash-and-carry are usually wrapped in green waxed tissue paper. This paper is purchased either in a large roll or in sheets 24" x 36". For special holidays, seasonal or multicolored paper is also available.

To wrap cut flowers in paper, follow these steps. (Figure 5.1)

1. Lay a large sheet of green waxed tissue paper on the worktable.
2. Arrange a few leaves of foliage, such as leatherleaf, pointing toward one corner of the paper.
3. Place flowers on top of the foliage. If possible, avoid piling the heads of flowers on top of each other to keep them from being crushed.
4. Fold the lower corner of the paper up over the stems.
5. Fold in each side, then roll the paper around the flowers. The paper is then cone-shaped and needs to be tightened around the lower end of the stems and flared out at the flower end. Tie a ribbon around the wrap or staple the ends to secure the flowers.

Delicate flowers such as roses are usually boxed for delivery. Boxes may be either white cardboard (Figure 5.2) or clear plastic (Figure 5.3).

To package flowers in a white cardboard box, first line the box with florist paper, extending it out on

Figure 5.1 - Wrapping Technique

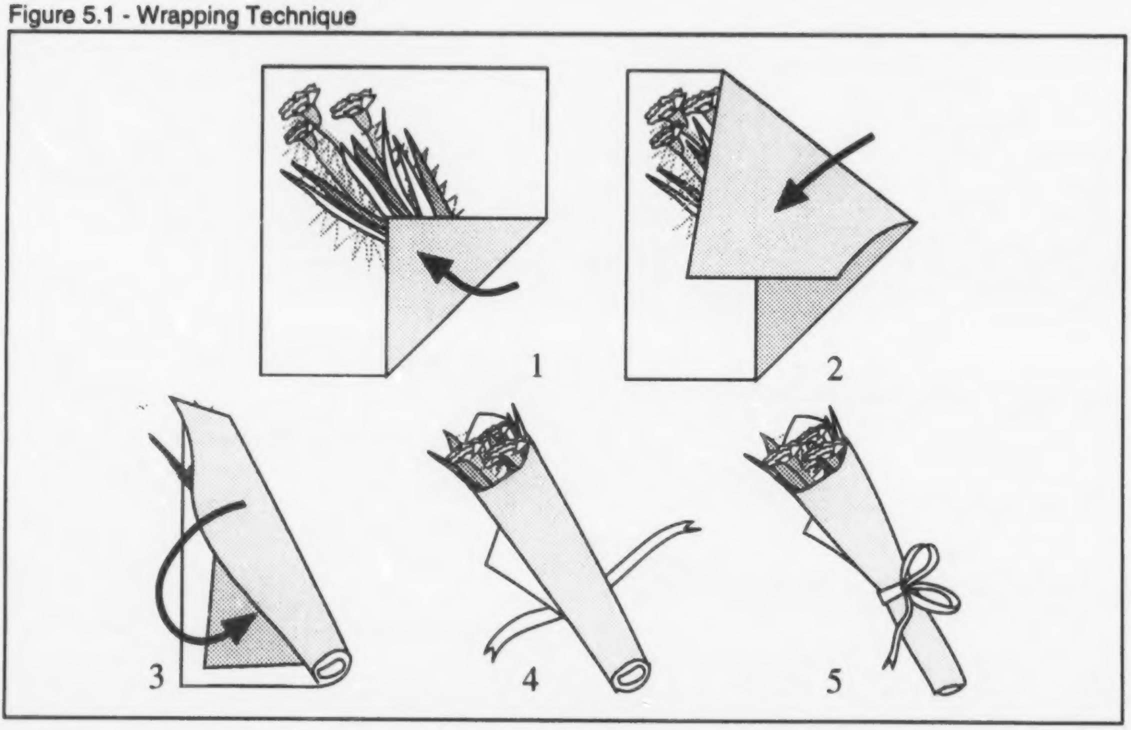


Figure 5.2 - White Cardboard Flower Box

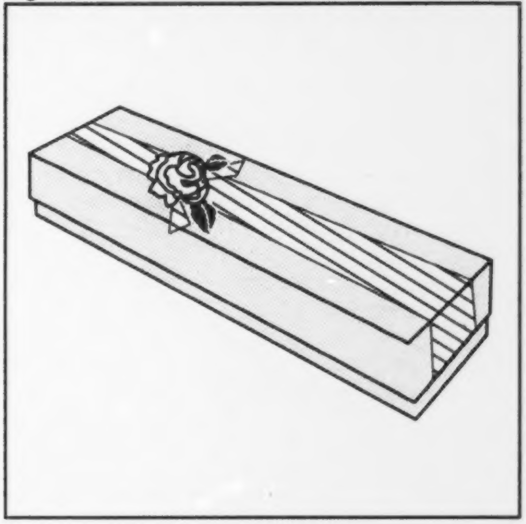
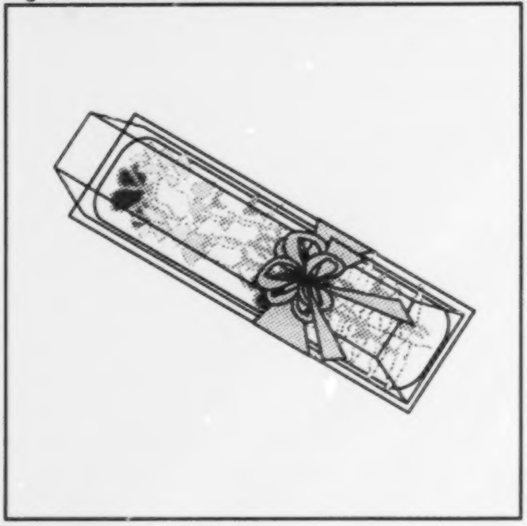


Figure 5.3 - Clear Plastic Flower Box



either side of the box. Place a layer of foliage on the bottom of the box. Arrange the flowers on top of the foliage. The flowers should be in rows with as little overlap of heads as possible. If roses are used, a floral pack, which is made of a piece of floral foam soaked in water and covered with foil, may be secured to the bottom and the stems inserted. Water picks may also be placed on the stem of each flower.

To help keep the flowers and foliage fresh longer, mist them lightly with water. Place a care tag in the box with a pack of floral preservative. Fold the paper over the flowers and foliage, then add the lid to the box. Secure the box with ribbon or tape. Add a bow and an enclosure card for delivery.

To package flowers in a clear box, first line the bottom of the box with foliage. Layer flowers on top of the foliage, avoiding the overlap of flower heads. Use foam or water picks if the flowers are fragile, such as roses. Mist the flowers and foliage with water. Snap the box shut, then add the bow and enclosure card.

Protecting Designs during Transportation

Floral arrangements are often wrapped for delivery, especially if the weather is very cold. They are usually wrapped in florist green waxed tissue paper.

1. Set the arrangement in the center of a large piece of green waxed tissue paper.
2. Gather the four corners.
3. Staple at the top, avoiding any flowers or foliage.

A compote (footed container) arrangement should be set in a box specially designed for transporting arrangements or in a box with crumpled paper stuffed around the base of the arrangement.

Some florists place a large plastic sack around arrangements. During warm weather, wrapping may not be necessary.

Dressing Potted Plants

Grooming a plant is the first step in preparing it for sale. Remove all yellow or dying leaves as well as old flowers. They not only look bad, but can also encourage disease. If the pot is dirty, wipe the outside with a damp paper towel. Check the plant for any insect pests. A plant should never be sold with insects on it.

Several suppliers provide care tags. They contain valuable information about the plant. The customer may forget verbal care instructions, but placing a care tag in the pot gives them a quick reference.

Once the plant is properly groomed and in good condition to be sold, the florist will "dress" a plant by wrapping the pot in foil and ribbon. Florist's foil is either polyfoil (two pieces of foil bonded together) or single foil. Polyfoil is much more durable and will not tear apart easily. Single foil is easier to shape to the sides of the pot, but is very fragile and will tear if care is not taken in handling it.

The color of the foil and the ribbon should complement the flower of the potted plant. Cut the foil to the appropriate size for the pot (e.g. 26 inches for a six-inch pot). Some florists fold down the edges of the foil 2 to 3 inches on all four sides. If this method is used, additional foil will be needed. Place the pot on the foil slightly to the front, positioning the plant so its best side faces the front. Make sure that the front of the foil will come up and cover the pot. Work around the left side of the plant with the left hand, gently gathering the foil up and around the pot. With the right hand, gently pull the corners upward while working around the pot. After gathering the foil around the pot, curve the two front corners downward so that they form a frame around the front. Make a bow from either #40 or #9 ribbon. Tie it off with a wired wooden pick. Insert the pick in the growing medium in the front of the pot. Some florists will wrap a length of ribbon from the top of the pot, down the side, under the back and back up the other side, securing it at the top with the pick.

Some plants may come from the grower with a pre-formed speed cover on their pots. The use of these covers saves valuable time.

For more expensive plants, a wicker basket may be used as a cover.

Using Plant Sleeves

Wrapping flowering potted plants and foliage plants is most easily accomplished by using plant sleeves. Plant sleeves are pieces of plastic, fiber mesh, or paper shaped into a cone. Select a sleeve size to fit the plant. It should fit closely, but not be too tight on the plant. Slip the plant into the sleeve, fold the top over, then staple it shut. The process is made easier by using a sleeving stand made especially for this process. A sleeve stand is a vertical rod about 36 inches high with a small disk or circle at the top on which to rest the pot. To use the sleeving stand, pull the sleeve up around the plant, turn the top edges of the sleeve under ½", roll them down several times, and staple them. The sleeve protects the potted plant during delivery and from cold weather. If it is extremely cold, double sleeving may be necessary. Plant sleeves may also be used to deliver floral arrangements.

Always make sure the enclosure card is attached to the plant on the inside of the sleeve and all pertinent delivery instructions are securely stapled to the outside.

Summary

Properly packaging flowers and arrangements ensures that they will be in good condition for the customer or recipient of a delivery. Cut flowers should be either wrapped or boxed for delivery. Floral designs must also be wrapped appropriately for delivery in order to protect them. Potted plants should be dressed for sale and prepared for delivery, which can be done most easily by using a plant sleeve.

Credits

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Lesson 1:
Identifying Basic Principles of Design

The major work of a florist is designing and arranging flowers. These tasks require special talent. A designer needs to have a knowledge of not only where the arrangement will be used, but also what container would be appropriate and what flowers, foliage, and accessories to use. The most difficult part is being able to combine all of these materials into a pleasing design. In order to do so, the florist must know the principles of arranging and the elements of design.

As James E. Smith points out in Flower Arranging: A Manual, "Flower arranging is an art -- the raw material is already in an advanced stage of design and beauty. The problem is to assemble these forms, line, color, etc. as elements of design into a harmonious composition."

Principles of Floral Arranging

The basic principles of floral arranging are design, balance, scale and proportion, harmony, focal point, accent, rhythm, repetition, and unity. No one principle is more important than any of the others.

Design - Design is a planned organization of elements to suit a specific purpose. The key is that it is a **planned** process. Designing involves thinking about the design, observing other designs, and finally practicing the design. Following this process will strengthen the ability to design.

Balance - Balance means stability. If a design is unbalanced, people feel dissatisfied. An arrangement lacks balance if it looks like it is about to fall over.

Scale and proportion - Scale is the relationship of one part of the arrangement to another. Proportion refers to the entire arrangement and its relationship to the area in which it is placed. To help achieve scale and proportion, do not use very large and very small flowers together or overly large flowers in very small containers.

Harmony - Harmony is achieved by mixing all the elements in the arrangement together. The major use of harmony is with colors that are pleasing together.

Focal point - The focal point is the major point of emphasis in the arrangement. It should be toward the bottom and center of the arrangement. To be effective, the focal point should draw attention to that area. This goal is usually achieved by placing the largest flowers or the brightest colors there.

Accent - Accent is emphasis. By using contrasting colors, sizes, or textures in an arrangement, a designer can accent a design. It should not detract from the focal point, however.

Rhythm - Rhythm is the movement produced by the arrangement. Rhythm is produced by repeating shapes, forms, or lines or by using small, medium, and large flowers. It can also be produced by using a line movement throughout an arrangement.

Repetition - Repetition is needed to keep the balance and rhythm of an arrangement. This end can be achieved by repeating the use of the same flower and/or color or even certain accessories.

Unity - Unity is the final principle that makes all of the other parts fit together. Combining the parts and tying them all together into an entire arrangement is essential.

Elements of Design

The basic elements of design are line, form, pattern, texture, and color.

Line - Line is the underlying skeleton or linear pattern that holds the arrangement together. Designers must know what line they are going to use before even starting an arrangement. The lines may be straight, horizontal, vertical, or curving. Horizontal lines reflect tranquility and peace, vertical lines are dignified. Curved lines give a sense of movement.

Form - Form represents the three-dimensional shape of the arrangement. The basic forms of arrangements can be triangular, horizontal, vertical, L-shaped, inverted-T, or curving.

Pattern - Pattern is the outline of a design. It is sometimes seen as the shadow.

Texture - Texture is the surface appearance of the materials used in the arrangement. Different flowers are regarded as having different textures. For example, some garden flowers, such as zinnias, are considered to be coarsely textured, while roses are considered to be finely textured. The textures of all the components in the arrangement must combine with each other in a pleasing relationship.

Color - Color is probably the single most important aspect of the design. It is one of the main reasons why flowers are so popular. Many colors are known to affect the moods of people. Yellows, reds, and oranges have an uplifting effect, while the cooler colors of greens and blues have a calming effect.

Color Harmonies

A color wheel is an important tool for a florist. By using a color wheel, the florist can determine which colors are complementary to each other. The six major types of color harmony are monochromatic, analogous, direct complementary, split complementary, triad, and polychromatic.

Monochromatic color harmony is obtained by using various tints, tones, and shades of one color. A tint is a hue (pure color) with white added to it. A tone is a hue plus gray, while a shade is the hue plus black. A good example of monochromatic color harmony would involve light blue, blue, and dark blue or navy.

Analogous color harmony is achieved by using two or three colors near each other on the color wheel. An example is grouping red, red-violet, and violet together.

Direct complementary colors are located directly opposite each other on the color wheel. A good example is orange and blue.

Split complementary colors include one color grouped with the colors on each side of the complementary color. For example, yellow orange, yellow green, and violet are split complementary colors.

Triad harmonies are three colors that are equidistant from each other on the color wheel. Red, yellow, and blue are a triad. One color should be dominant.

Polychromatic groupings are obtained by using many colors; however, one color should always be dominant.

Rules of Design

A designer need not always strictly adhere to rules of design. When first beginning, however, designers should keep a few basic rules in mind.

- The arrangement should be 1½ to 2 times the height or length of the container.
- Do not use more than four colors in an arrangement.
- Do not use more than three kinds of flowers in an arrangement.
- Keep large flowers toward the bottom and center of the arrangement and small flowers toward the top and edges.
- Do not crowd flowers together.
- Place dark colors toward the bottom of the arrangement.
- If the flowers in an arrangement are all the same size, maintain a ratio of three light flowers for every dark flower.
- If using less than twelve flowers in an arrangement, use an odd number of them.
- A flower or leaf should be used to interrupt the line of the container.

Summary

Designers need to know and be able to incorporate the principles of floral arranging in their work. In order to create effective designs, they must learn the various elements of design and the color harmonies. The beginning designer should follow the basic rules of design, but the more experienced designer may sometimes disregard them.

Credits

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Lesson 2: Identifying Design Shapes

All floral designs begin with an idea of what general shape they will follow when completed. Many different design shapes exist, but some are much more widely used than others. Newer, more contemporary "high style" design shapes are emerging in anticipation of the future of floral design.

Straight-Line Arrangements

The basic straight-line arrangements are horizontal, vertical, inverted-T, symmetrical triangle, asymmetrical triangle, and right angle. See Figure 2.1.

The horizontal arrangement is low and flat with a long horizontal line. It is most often used for table centerpieces because it allows dinner guests to see over it.

The vertical arrangement is oriented straight up. The height of the arrangement is twice the height of the container, sometimes even higher. However, it should not be wider than the width of the container to be a true vertical arrangement.

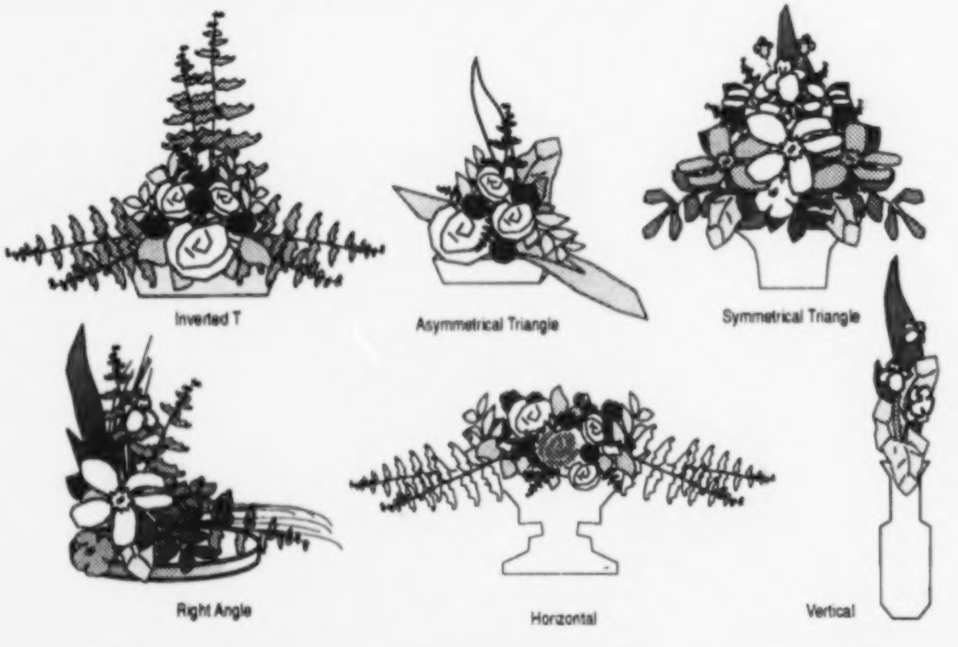
An inverted-T arrangement is a combination of the horizontal and the vertical. The lines are not filled in but are allowed to dominate the arrangement.

The symmetrical triangle arrangement is a very formal design. It must be equal on both sides, so that if a line were cut down the middle, both sides would be the same.

The asymmetrical triangle arrangement has unequal sides and angles but is still balanced.

The right angle arrangement is also called an L-shaped arrangement. It is characterized by a tall vertical line with a horizontal line on one side. The horizontal line can run either right or left. Two matching arrangements using a right angle are often made to be placed on opposite sides of a focal point, such as a wedding cake.

Figure 2.1 - Basic Straight-Line Arrangements



Curved Arrangements

The basic curved arrangements are the hogarth, circle, crescent, and oval. See Figure 2.2.

The Hogarth curve has a serpentine line, giving the arrangement a "lazy S" shape. This curve was referred to as the "line of beauty" by the English artist William Hogarth, from whom it takes its name.

A circle design is round, the same on all sides. For this reason, it is often used for centerpieces for smaller tables.

The crescent arrangement resembles a half moon. The focal point is low and near the center of the crescent.

An oval arrangement is similar to the circle but is elongated and egg-shaped.

Contemporary Designs and Techniques

Many different newer designs and techniques are used by florists. Some of the different categories of designs are the traditional or classical, the naturalistic, the linear, and the modernistic or experimental. They all include various designs.

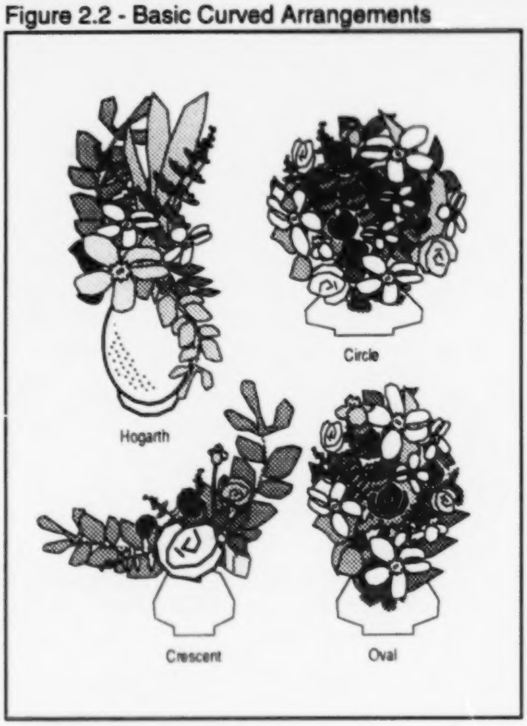
The traditional or classical designs are the mille fleurs, the Biedermeier, the phoenix, and the waterfall.

Mille fleurs literally means a thousand flowers. Sometimes referred to as the mille de fleurs, this free flowing and naturalistic design incorporates many different flowers and colors.

The Biedermeier is a compact conical arrangement with the flowers placed in rows. Each row is comprised of the same flower. The top flower is usually a very fragrant flower. This arrangement is very formal.

The phoenix arrangement is named after the mythological bird. The legendary phoenix lived 400 to 500 years, burned itself up, and then rose from the ashes to live another 400 to 500 years. This style has a mound of flowers with tall flowers or branches coming from the center of the arrangement to represent the phoenix rising from the ashes.

Figure 2.2 - Basic Curved Arrangements



The waterfall design has a cascade of flowers tumbling down the side of the arrangement, representing falling water. This style was originally created for bridal bouquets. Sometimes feathers and pieces of yarn are also incorporated in the arrangement. Small mirrors or bits of foil can also be added, representing the sunlight on the water. This arrangement is very free flowing, with all of the flowers and foliage appearing to come from the center.

The naturalistic designs include botanical, vegetative, and landscape arrangements.

A botanical arrangement has one main flower that is represented throughout the five phases of its life: stem, blossom, foliage, buds, and bulbs or roots.

The botanical arrangement is considered a study of the main flower. Other plants that appear in the main flower's environment may also be added, with the base often being moss, stone, or water.

A vegetative arrangement represents flowers in their natural setting. The flowers that grow taller are the tallest in the arrangement, while the shorter flowers are the shortest. It also groups flowers that bloom at the same time. The vegetative arrangement is usually constructed so that it can be viewed from all sides.

While it is very similar to the vegetative, the landscape arrangement encompasses nature on a greater scale, including representations of the various elements that form a landscape. It is usually one-sided.

The linear designs consist of western, parallel system, new convention, and formal linear arrangements.

Western is a general term for line arrangements that are symmetrical or asymmetrical. The body of the arrangement is not filled in, leaving the line very open and bringing out the strong lines. The flower stems all appear to be coming from one central point.

The parallel system is a vertical design that has groups of flowers and foliage, with each group being one type of flower or greenery. The stems in each group are parallel to each other. This design makes use of negative space. The base should be covered with moss, rocks, or water.

The new convention design is similar to the parallel system, but it uses horizontal lines as well as vertical groupings. Vertical flowers and foliage are repeated low in the design with flowers placed horizontally at right angles to them.

The formal linear design is based on very clear lines and distinct forms. This style is also called high style. The emphasis is placed on line, which is accented by the sparse use of flowers and foliage. This style uses a great amount of negative space.

The modernistic or experimental designs include sheltered, pavé, pillowing, new wave, and abstract arrangements. They are all new and modern trends.

In a sheltered design, parts of the design are sheltered and hidden from first viewing. Often the design will be inside the container, and the viewer must look down into the container to be able to see the arrangement. Foliage can also be used to shelter or hide parts of the arrangement.

Pavé is the name of a style of jewelry making in which the gems are tightly arranged next to each other so that no metal shows. In a pavé arrangement, groups of flowers are packed closely together in a low, flat pattern. The different groups should contrast in color.

Pillowing involves having small tufts of flowers in little groups coming from different areas in the arrangement.

The new wave design is a newer, experimental trend. This design uses material that has been sprayed, dyed, curved, braided, or changed in some way, usually in an unnatural manner. New wave arrangements are often very unusual in appearance, with no rules applying to their design.

An abstract arrangement is a very free form, free flowing design. These arrangements are usually nonrealistic; the plants used are generally manipulated in some unnatural way.

Summary

Designers must know the design shapes that they may use in creating floral arrangements, including straight-line, curved, and contemporary designs.

Credits

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Lesson 1: Uses of Floral Designs

Floral designs have many uses. Occasions such as weddings and funerals make use of specialized designs, while people also use flowers in their homes and businesses every day.

Floral Designs in the Home

Floral designs are used in many places in the home, usually limited only by the imagination or the space in which to place them. The most traditional place for a centerpiece is on the dining room table. This arrangement must be constructed to be seen from all sides and be low enough not to interfere with conversation at the table. It should also be low enough not to obstruct vision when someone is seated.

Centerpieces are used at various other places in the home where the design will be seen from all sides. A centerpiece might be placed on a coffee table, for example.

A fireplace mantle is another attractive location for a floral design. If two arrangements are used to decorate the mantle, they will usually be asymmetrical triangles. Smaller arrangements can be used on end tables, bedroom night stands, or vanities. Some flower arrangements can even be used on a bathroom vanity, provided there is enough space.

A tall thin arrangement can be placed by the front entryway into the home. Some arrangements can be placed on a piano. Designs can also be displayed on doors and walls.

Wedding Designs

Weddings are one of the most important uses for flowers. Some of the different types of designs used for weddings are listed below.

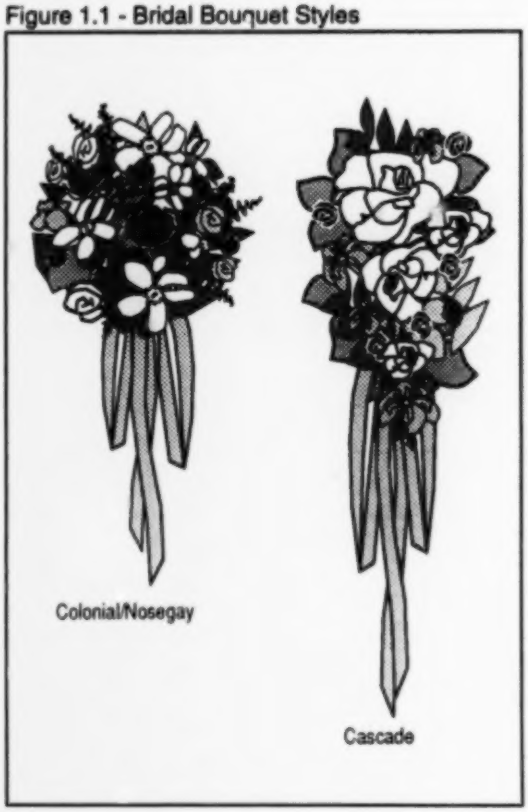
The bridal bouquet and attendant flowers are traditionally one of several types. The cascade, or long flowing style, is popular with many brides, but the colonial or nosegay styles are also popular. See Figure 1.1. Some brides like to carry arm bouquets. Flowers can also be arranged on Bibles, fans, or parasols to be carried in the ceremony. The flowers of the attendants are traditionally more colorful, and they carry out the color theme of the wedding.

All members of the wedding party wear corsages or boutonnieres. Anyone who helps with the wedding should be identified with a flower.

The ring bearer, in addition to wearing a boutonniere, will often carry a pillow with a replica of the rings and a small floral design attached. The flower girl carries a basket of petals with flowers on the side or, if the church does not allow the dropping of petals, with a design in the basket.

Ceremony designs can be placed in a number of locations. Traditionally, a large arrangement of flowers is placed directly in the center of the altar. Twin arrangements are sometimes placed on either side of the altar. Floral decorations can be used for the candelabra, kneeling bench, canopy, Virgin Mary statue, unity candle, guest book, aisle runner, and aisle.

Figure 1.1 - Bridal Bouquet Styles



Flowers used in the reception include cake flowers and decorations for the punch table, gift table, buffet or food table, and individual tables.

Cake flowers can be used on the top of the cake in place of a traditional cake topper, or if a topper is used, flowers and foliage can be placed around it. Depending on the style of the cake, flowers and/or foliage can be added to each layer, between each layer, or around the base of the cake.

Funeral Designs

Floral designs used for funerals fall into several major types.

Casket sprays are designed in both full and half sizes, depending on the style of the casket and whether it will be closed or open. If the casket is closed, a full casket spray that covers the entire casket is used. These sprays are usually constructed on pieces referred to as saddles that hold two blocks of floral foam. The casket spray should not be taller than 8" or 9". If the casket is open, the spray should curve down over the side. Figure 1.2 shows a half casket spray. A half casket spray uses a smaller saddle and only one block of floral foam. It is not symmetrical but has the majority or larger mass of flowers at the open end, tapering off to the end of the casket.

A casket garland is a roping of flowers and foliage that can be draped across the casket if it is open or closed.

A casket scarf is constructed on a piece of material and draped over the casket either side-to-side or front-to-back.

A casket blanket is constructed on a piece of material, which is covered entirely with greens and blossoms. It completely covers the top of the casket.

Flowers placed inside the casket can take several forms, such as a corsage or boutonniere, flowers on a Bible, or flowers in the hand. These designs are usually small floral pieces sent by the grandchildren or children.

Standing sprays, or easel sprays, are one-sided designs that are created in a plastic cage with floral foam and displayed on a wooden or metal easel. Figure 1.3 is one example of a standing spray.

A flat spray is constructed in Styrofoam™ or by tying a large group of flowers and foliage together. If large numbers of these have been sent for the service, they can sometimes be combined and displayed on a wall behind the casket as a wall of sprays.

Figure 1.2 - Half Casket Spray

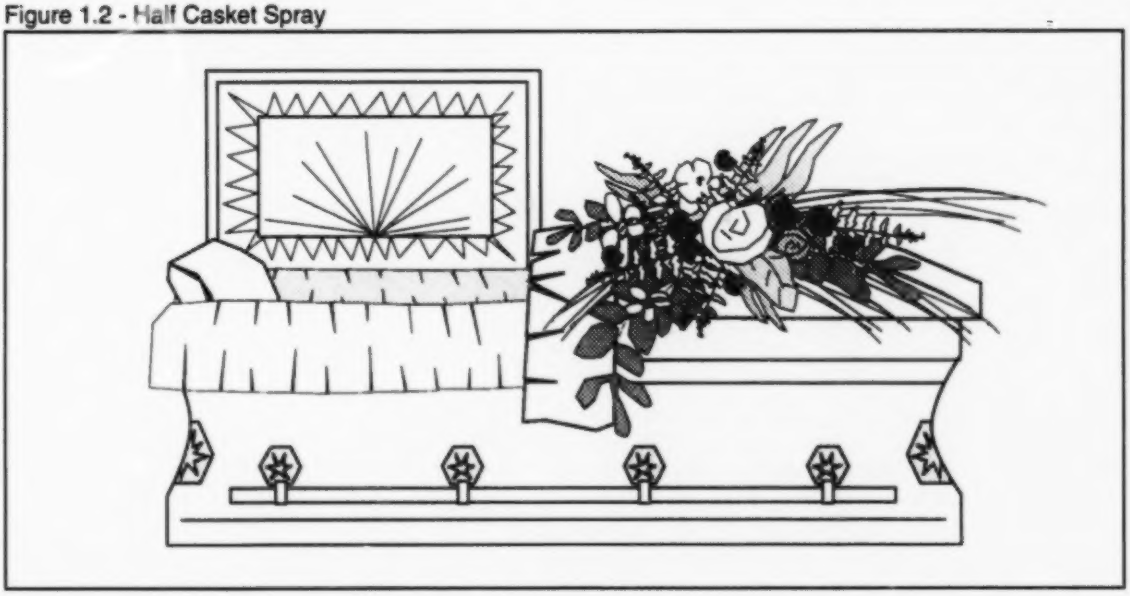


Figure 1.3 - Standing Spray

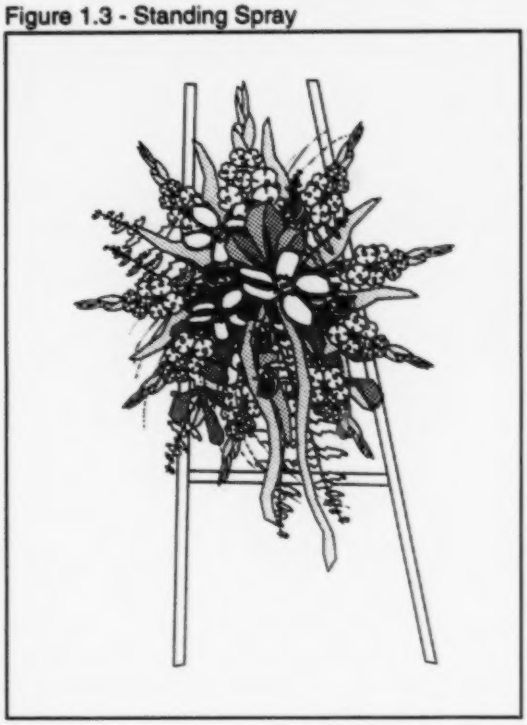
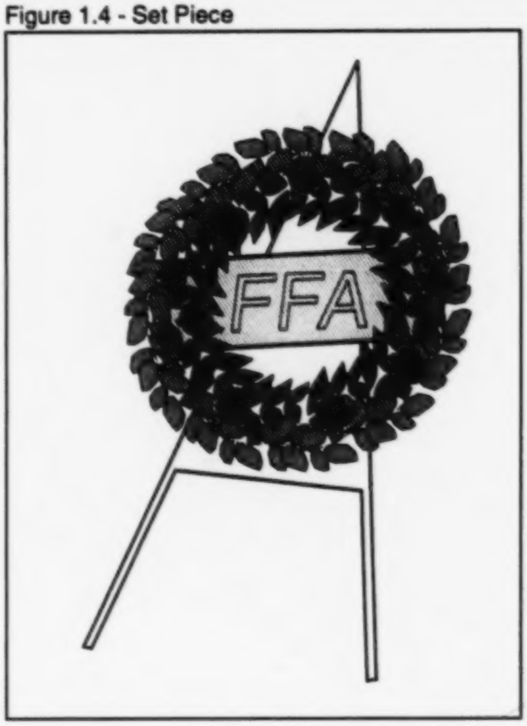


Figure 1.4 - Set Piece



Basket arrangements can be made in wicker, plastic, or papier-mâché containers.

Pedestal arrangements are large arrangements displayed on a pedestal. They are usually sent by close family or friends, often by several families together. A pedestal arrangement is placed at the head or foot of the casket.

Set pieces are designs constructed in special shapes such as a cross, heart, or pillow. They can also represent an organization (Figure 1.4) or lodge. Usually, the shape is cut from Styrofoam™, and then flowers and foliage are glued or fastened to it.

Wreaths can take several forms. Some can be made of Styrofoam™ covered with foliage with a design added to one section. Wreath forms can be purchased that are constructed of floral foam and can be filled with flowers and foliage. Ribbon can be wound around a Styrofoam™ wreath frame with a bow and flowers added. Wreaths can also be constructed of grape vines or eucalyptus and decorated with bows and flowers.

Flowering potted plants are also popular items to send for funerals. They are usually decorated with coordinating foil and ribbon.

Dish gardens, which contain a variety of potted plants, can be sent to a funeral, but they are more often sent to the home of the family.

Wearing Flowers

Flowers can be worn in a variety of ways. The most common "body flowers," or floral designs that are worn, are corsages and boutonnieres. However, flowers can also be worn as a lei, a type of garland that is Hawaiian in origin and is worn around the neck. For special occasions, flowers may be worn in the hair, either pinned directly to the hair or in the form of floral designs attached to barrettes or combs. Floral pieces may also be attached to hats and veils for occasions such as weddings.

When designing flowers to wear, make sure that designs are a suitable shape and size and that they are not too heavy to be worn comfortably.

Customizing Designs for Holidays

Designs can easily be customized for holidays and special occasions. One of the easier ways is to add accessories such as seasonal picks, ribbons in appropriate holiday colors or designs, and chenille in seasonal shapes.

Some flowers and foliage are identified with a particular season. The addition of holly or evergreens to an arrangement will instantly identify it as a Christmas arrangement. Easter and Easter lilies are also closely associated.

Summary

Flowers are an important part of people's lives, not only during holidays and for special occasions such as weddings and funerals, but for everyday use as well. They can be used to express many sentiments, such as joy, sorrow, and congratulations.

Credits

Anderson, Gary A. *Floral Design and Marketing.* Columbus, Ohio: Ohio State University, 1988.

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

Woodhull, James; Valerie Brosey; Petel Kreysa. *A Catalog of Performance Objectives and Performance Guides for the Floriculture Worker, Retail Flower Shop Salesperson, and Floral Designer.* College Park: University of Maryland Department of ITOE, 1984.

Lesson 2: Corsages and Boutonnieres

Flowers have been used as methods of decoration since ancient times. Today, flowers usually are worn for special occasions such as weddings. The flowers that women wear are referred to as corsages, and the flowers that men wear are called boutonnieres.

Corsages

Corsages can be worn in a variety of ways. Most commonly, they are worn on the left shoulder. They should curve slightly over the shoulder and be worn upright, the way the flowers grow in nature. Wrist corsages are popular for certain occasions. Remember to keep wrist corsages small and construct them from more durable flowers than those in a shoulder corsage.

For some special occasions, small corsages can be constructed and then taped onto a hair comb or barrette. Occasionally, a corsage will be pinned to a belt around the waist. Some women wear them on a ribbon around their neck or ankle.

If a woman does not want to wear a corsage, a good alternative is to carry the corsage or to pin it on her purse.

Parts of a Corsage

Corsages consist of six basic parts: flowers, foliage, filler, wire, tape, and a bow.

Flowers - Roses and carnations are the most widely used flowers for corsages. Almost any flower can be used, provided that it will hold up well and will not wilt if it is without water for an extended period of time. It must not be too delicate (it should not fall apart if it is bumped or shaken) or too large to be worn. It must also be appropriate for the occasion.

Foliage - Leatherleaf fern is probably the most popular foliage used in corsages. Again, any foliage can be used as long as it is not too delicate and will hold up well.

Filler - Filler is not always necessary, but it often makes the corsage more attractive. The most commonly used filler is baby's breath. Any filler can be used as long as it is durable and has longevity.

Wire - Wire is necessary to replace the stems of the flowers. Always use the lightest weight wire possible in order to keep the corsage lightweight.

Floral tape - Tape is used to bind the flower to the wire and tape together the flowers, foliage, filler, and bow, covering the wires.

Bow - A bow should be made in a color that complements the color of the flowers. The bow should be an appropriate size for the finished corsage and should always be kept in scale with the corsage. A bow is just an accessory and should not overpower or draw attention away from the flowers.

Constructing Corsages

Different corsages are constructed in different ways, largely depending on the number of flowers included in the corsage.

To construct a single-flower corsage:

1. Prepare the flower by wiring and taping. Remember to tape flowers halfway up the calyx.
2. Add filler to the back of the flower.
3. Add foliage to the back of the filler.
4. Tape all three together.
5. Add a bow that has been tied off with wire. Twist this wire around the wire of the flower.
6. Cut off the excess wire, leaving about 1½" to 2" of wire. Make sure the wires are taped.
7. Shape the wire into the desired shape.
8. Put a corsage pin in the corsage at an angle so that the pointed end is not exposed.
9. Place the corsage in a bag or box.

To construct a two-flower corsage:

NOTE: Usually carnations or cymbidium orchids are used, so these corsages are larger.

1. Make two one-flower corsages, but leave the smaller of the two flowers with a longer, stronger stem.

2. Place the smaller flower just above the other flower.
3. Wrap and tape the wires together.
4. Add a bow, usually under the second flower.
5. Trim the stem to about 2". Shape the stem.
6. Always include at least two corsage pins with this larger corsage.
7. Place the corsage in a bag or box.

To construct a three-flower corsage:

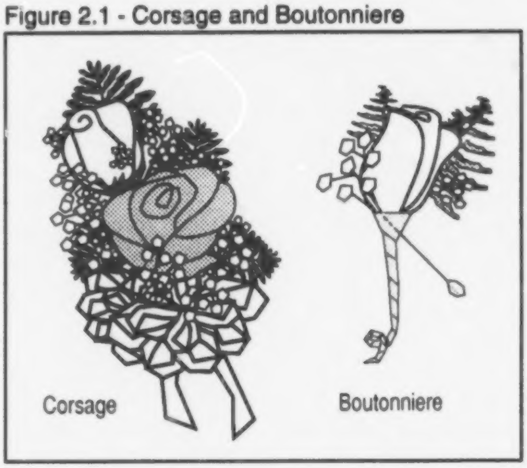
1. Wire and tape three flowers in graduating sizes.
2. Place the bud the highest, the second largest flower right under it, and the largest flower slightly under this one.
3. Tape filler behind each.
4. Add foliage behind filler.
5. Tape all three layers together.
6. Add a bow under the three flowers.
7. Trim the stem to about 2". Shape the stem.
8. Always include at least two corsage pins with this larger corsage.
9. Put the corsage in a bag or box.

To construct a five-flower corsage:

1. Make a three-flower corsage and a two-flower corsage
2. Place the corsages together at the stem ends. The stem of the two-flower corsage should be bent so that it will lay flat against the stem of the three-flower corsage. Wrap all the stems together, being sure not to leave too large a space between the two groups of flowers.
3. Tie the bow with ribbon in between the two groups, eliminating the necessity of taping again.
4. Trim the stem to about 2". Shape the stem.
5. Always include at least two corsage pins with this larger corsage.
6. Put the corsage in a bag or box.

Flowers to be worn can have a wide variety of uses. When creating a floral design to wear, the florist must be sure to keep a number of basic principles in mind. Use the smallest wire possible. Keep corsages and boutonnieres as lightweight as possible. If using accessories, keep them simple. Remember, they are used only for the enhancement of the design.

Figure 2.1 - Corsage and Boutonniere



Corsages and Boutonnieres

Corsages and boutonnieres are quite similar, but they do have a few differences. Boutonnieres are worn by men on their lapel, usually close to the buttonhole. Boutonnieres are smaller than corsages (Figure 2.1). Generally, a boutonniere is composed of only one flower or a composite of several small ones. Roses or carnations are commonly used in single-flower boutonnieres. The pins used to hold boutonnieres have smaller heads and are shorter than corsage pins. Corsages are worn by women, usually on the left shoulder. Corsages are usually larger than boutonnieres and have more flowers and a bow.

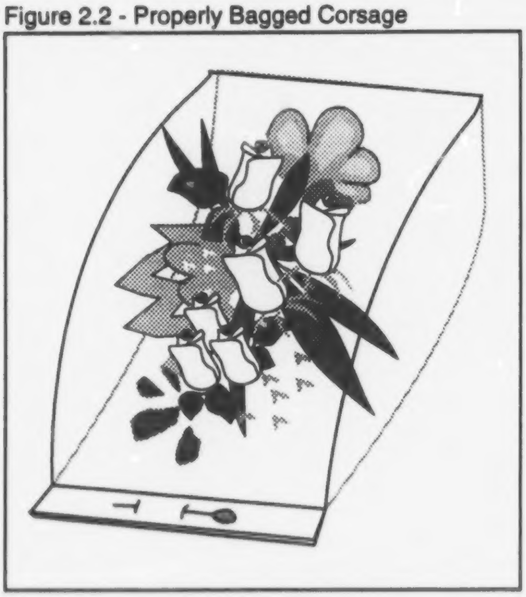
Packaging a Corsage

The packing and handling of corsages and boutonnieres are important for the flowers' ability to last and for customer satisfaction.

Corsages can be placed in cellophane (plastic) bags, clear plastic boxes, or cardboard boxes, depending on the budget of the florist.

If using a cellophane bag, mist the inside of the bag before placing the corsage inside. Try not to mist the flower directly, but only the interior of the bag. When placing the corsage in the bag, make sure the seam in the bag is to the back. Neatly fold the bag closed. In order to keep the bag closed, insert another corsage pin in the seam or staple it (Figure 2.2).

Figure 2.2 - Properly Bagged Corsage



If using a clear plastic or cardboard box, line the box with Easter grass or green waxed paper. Close the lid securely.

Summary

Corsages and boutonnieres are often sold for special occasions. Florists must therefore be able to construct them both, as well as corsages consisting of different numbers of flowers. Proper packaging is also important to ensure that corsages and boutonnieres are in good condition for the customer.

Credits

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

Stratman, Teresa. *Retail Floriculture, Book 2.* Columbus: Ohio State University, 1976.

Lesson 3: Bud Vases

A bud vase is one of the major types of arrangements that florists produce, and it is the most simple vertical design. Bud vases are excellent cash-and-carry arrangements, and every florist should have several in the cooler at all times. They are usually inexpensive and easy for customers to carry home. Their major use is as gifts, usually in hospital rooms, on office desks, or for other areas without much space.

Bud vases are usually of a simple design and require only one or a few flowers. The number of flowers to use depends partly on the size of the opening at the top of the vase. A simple test to determine this number is to insert a thumb into the neck of the base. If it barely fits in, only one or two stems of plant material can be used.

Bud vase containers are tall, narrow, and usually clear, white, or green glass, but they can also be plastic and in a rainbow of colors. Customers may request a certain type of bud vase.

Bud vases are usually designed to be viewed from just one side.

Constructing a Bud Vase

1. Select a container. Make sure it is clean.
2. Fill it with water to which a preservative has been added.
3. Place the major flowers to establish the basic height. The height is generally 1½ to 2 times the height of the container, so the tallest flower in a standard eight-inch bud vase would be 16 inches tall. If using more than one flower, vary the height of the flowers so that they are evenly spaced out with the tallest. Remember that if flowers of varying sizes are used, the largest should be placed at the bottom of the arrangement, while the smallest should be placed highest.
4. Add foliage, using two pieces that are slightly taller than the flowers and a few shorter pieces to the side. If leatherleaf is used, it is helpful to place the foliage back to back in order to hold it straight. Other foliages can also be used with the leatherleaf or substituted for it. Use enough foliage stems to hold the flowers in place.
5. Add filler flowers if desired. Baby's breath is frequently used, but statice, latifolium, Queen Ann's lace, and other fillers also work well.
6. A bow may be added as an accent. A #3 ribbon is usually used. Wire it onto a wooden pick, a flower, or a foliage stem and place it slightly above the edge of the vase.

It is important to keep the number and size of the flowers in proportion to the size of the vase.

Summary

Since bud vases are frequently purchased by customers, florists need to know how to construct them in order to produce these very popular arrangements both quickly and efficiently.

Credits

Griner, Charles. *Floriculture Designing and Merchandising.* Albany: Delmar Publishing Inc., 1995.

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

Redbook Florist Services Editorial Advisory Committee. *Basic Floral Design.* 2nd ed. Paragould, AR: Redbook Florist Services, 1993.

Lesson 4: One-sided Arrangements

The one-sided arrangement is placed where it will not be viewed from all sides.

Constructing a One-sided Arrangement

Some of the supplies needed to construct a one-sided arrangement include a container, floral foam, flowers, filler, foliage, and floral shears or a knife. Waterproof tape, wire, and wire cutters may also be needed.

Choose the line or shape of the arrangement - First, choose the line or shape and the size of the arrangement. These factors influence all of the other decisions. Where the arrangement will be placed is of utmost importance and will influence the shape and size. The customer may set a dollar range for the arrangement, which also affects size, type of flowers used, etc.

Select flowers and foliage - Select flowers, filler, and foliage that will complement the area where the arrangement will be placed. Choose plant materials that will easily adapt to the shape used.

Select a container - The selection of a container is equally important, because it must be in scale with the size of the arrangement and in keeping with its shape and the colors of the flowers. The style of the area will also somewhat determine which container is chosen. For example, an informal basket would not normally be used for an arrangement to be placed in a formal living room.

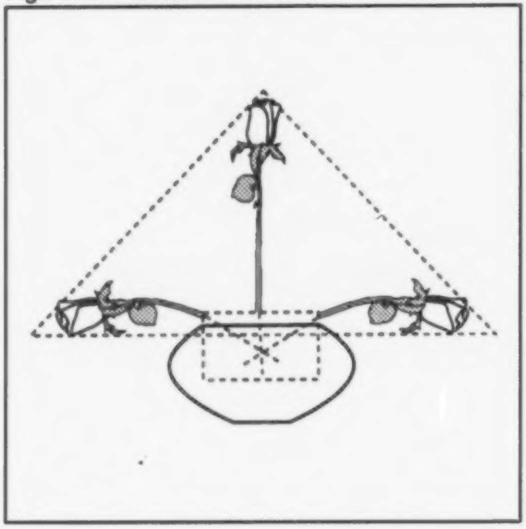
Prepare floral foam - Prepare floral foam by soaking it in water with a preservative.

Cut the foam to fit the container. Do this with a knife or a piece of thin wire. Remember, there should be a small well of water, or room between the block of foam and the container to fill with water. Leave the foam extending about an inch above the top of the container, allowing stems to be inserted horizontally.

Secure the foam in the container, using waterproof tape if necessary. Add water with a preservative to the container.

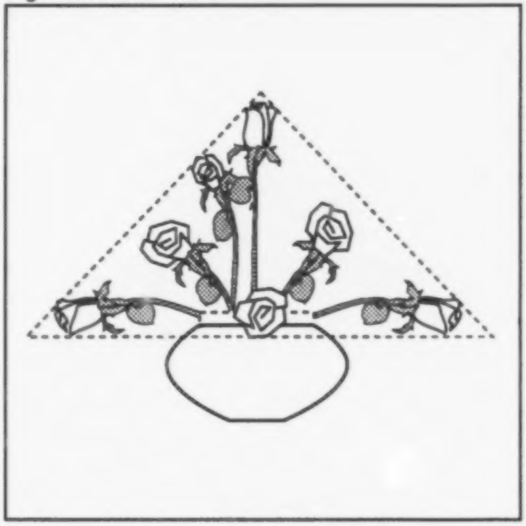
Establish lines - The next step is to establish the lines of the arrangement. Do so by outlining the line using the main flowers or the foliage. Be sure to tilt the tallest top stem slightly back from the front of the design. All stems should appear as if they are emerging from the same central point (Figure 4.1).

Figure 4.1 - Establish Lines



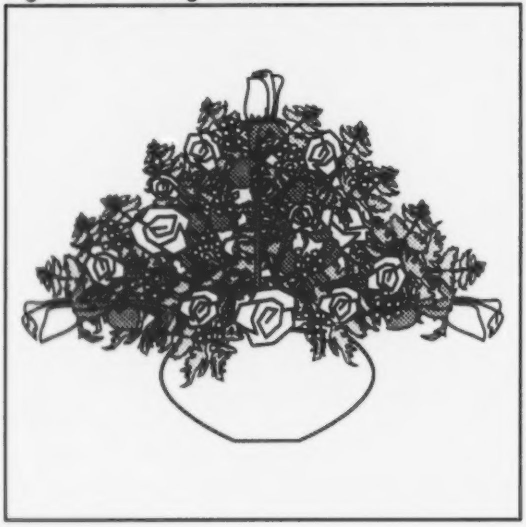
Fill in the lines - After establishing the lines, fill them in. Be careful not to crowd the flowers, following the basic rules of design (Figure 4.2).

Figure 4.2 - Fill in the Lines



Add foliage and filler - Add the foliage and filler next. Filler can help fill in voids and add additional color. The foliage should complement the flowers. The foam should not be visible after the foliage and filler are added (Figure 4.3).

Figure 4.3 - Foliage and Filler Added



Some designers add the foliage before inserting the flowers. This is a matter of personal preference; however, some flower shops will often "green up" a number of containers before a very busy season for increased efficiency in designing arrangements.

If placed in well soaked floral foam and kept cool, foliage will often outlast the flowers in an arrangement.

Finish off the back - When constructing a one-sided arrangement, do not forget to finish off the back. Even though flowers are not added to the back, the floral foam needs to be covered with additional foliage.

Refill the container with water - Lastly, refill the container with water mixed with a preservative. Flowers and foliage will often take up more water, and they should NEVER run out of it.

Summary

Designers should be able to construct an attractive one-sided arrangement. Following the steps given above will allow them to do so efficiently.

Credits

Anderson, Gary A. *Floral Design and Marketing.* Columbus, Ohio: Ohio State University, 1988.

Griner, Charles. *Floriculture Designing and Merchandising.* Albany: Delmar Publishing Inc., 1995.

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

Stratman, Teresa. *Retail Floriculture, Book 2.* Columbus: Ohio State University, 1976.

Lesson 5: Centerpieces

Centerpieces are usually designed for dining room tables, but they also can be used on coffee tables or any other place where the arrangement will be viewed from all sides.

Constructing a Centerpiece

Some of the supplies needed to construct a centerpiece include a container, floral foam, flowers, filler, foliage, and floral shears or a knife. Waterproof tape, wire, and wire cutters may also be needed.

Choose the line of the arrangement - First, choose the line or shape and the size of the arrangement. Will it be a circular or oblong centerpiece? These components of the arrangement influence all of the other decisions. Where the centerpiece will be placed is of utmost importance and will also influence its shape and size. Dining room table centerpieces should not be too large, but again, size depends on the size of the table.

Select flowers, filler, and foliage - Select flowers, filler, and foliage that will complement the area where the arrangement will be placed. Choose plant materials that will easily adapt to the shape used.

Select a container - The selection of a container is also important, since it must be in scale with the size and in keeping with the shape of the arrangement and the colors of the flowers. Generally, centerpiece arrangements are made in low, flat containers. The style of the area will somewhat determine which container is chosen. For example, a plastic container would not normally be used for a formal dining room arrangement.

Prepare the floral foam - Prepare floral foam by soaking it in water mixed with a preservative.

With a knife or a piece of thin wire, cut the foam to fit the container. There should be a small well of water or room between the block of foam and the container to fill with water. Leave the foam extending about an inch above the top of the container to allow stems to be inserted horizontally.

Secure the foam in the container, using waterproof tape if necessary.

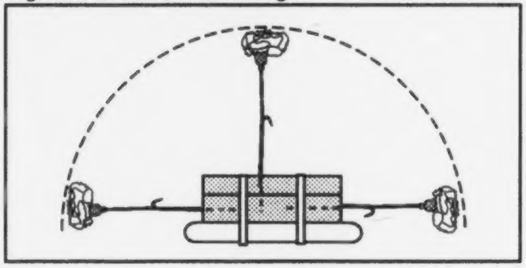
Add water and a preservative to the container.

Establish the lines - The next step is to establish the lines of the arrangement. Do this by outlining the line or shape that the arrangement will follow.

Insert the main or center flower to establish the height of the arrangement. Make sure this flower is low enough that guests seated at the dining room table can easily see over it so that it does not interfere with conversation at the table. The center flower is usually no taller than 12 to 14 inches. All stems should appear to be emerging from the same central point.

Insert two flowers at the furthest lengths of the arrangement (Figure 5.1). Their lengths will be determined by the length of the table. A centerpiece is usually about one-third the length of the table.

Figure 5.1 - Establish Length

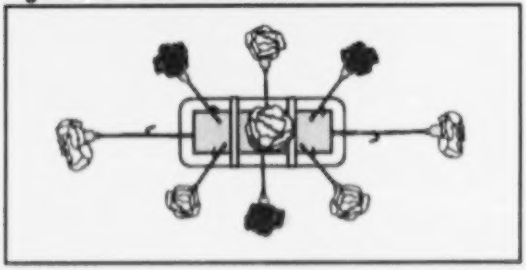


Next, insert two flowers on the other two sides to establish the width of the arrangement. The flowers should almost rest on the edge of the container.

Join the lower flowers to the center flower by inserting four more flowers diagonally in each of the opposite corners, making them shorter than the main flower and those at either end, but longer than the flowers that establish the width.

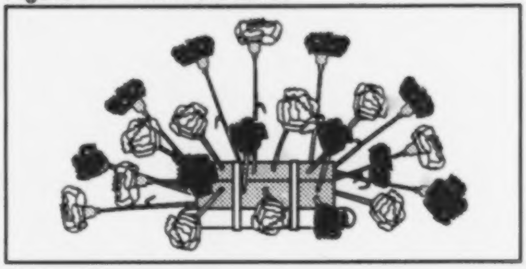
Figure 5.2 shows an overhead view of the centerpiece with the lines established.

Figure 5.2 - Overhead View of Lines



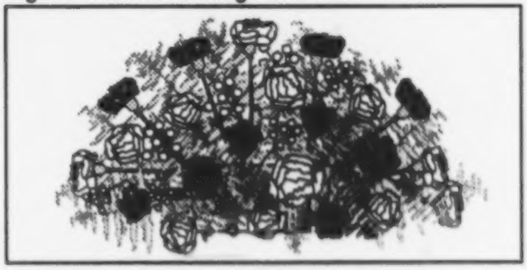
Fill in the lines - After establishing the lines, fill them in (Figure 5.3). Be careful not to crowd the flowers. Follow the basic rules of design. Centerpieces will be very similar on either side.

Figure 5.3 - Fill in the Lines



Add foliage and filler - Add the foliage and filler next (Figure 5.4). Some designers add the foliage before inserting the flowers. This is a matter of personal preference; however, be careful not to have too many foliage stems in the top of the foam because they can interfere with the placement of the flower stems.

Figure 5.4 - Add Foliage and Filler



Flower shops will often "green up" a number of containers before a very busy season to help save time in constructing large numbers of arrangements.

If placed in well soaked floral foam and kept cool, foliage will often outlast the flowers in an arrangement.

Refill the container with water - Lastly, refill the container with water mixed with a preservative. Flowers and foliage will often take up more water, and they should NEVER run out.

Summary

Designers should be able to construct centerpieces that are attractive from any angle, since they will be viewed from all sides. To create centerpieces efficiently, follow the steps above.

Credits

Anderson, Gary A. *Floral Design and Marketing.* Columbus, Ohio: Ohio State University, 1988.

Griner, Charles. *Floriculture Designing and Merchandising.* Albany: Delmar Publishing Inc., 1995.

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

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Reiley, Edward H.; Carroll L. Shry. *Introductory Horticulture.* 3rd ed. Albany: Delmar Publishers Inc., 1988.

Stratman, Teresa. *Retail Floriculture, Book 2.* Columbus: Ohio State University, 1976.

Lesson 6: Wreaths

Wreaths are used throughout the year with materials and accessories that reflect the season. For Christmas, the single largest holiday for the florist (mainly because Christmas is celebrated as a season beginning after Thanksgiving and continuing through Christmas Day), one of the major items that florists sell are wreaths made of evergreens.

Types of Base Materials for Wreaths

A fresh green wreath can be made in several ways. The easiest method is to purchase an undecorated evergreen wreath and decorate it. Some florists with limited time and few employees do this. However, constructing your own wreath is more economical, especially if you can cut your own evergreens. White pine, Scotch pine, white spruce, silver fir, boxwood, noble fir, and blue spruce are some of the more suitable evergreens for constructing your own wreath.

These evergreens may be attached to several different types of frames. Styrofoam™ or straw wreath frames are available for purchase. The greenery must be picked or attached to these frames with greening pins.

A wire frame is less expensive than a Styrofoam™ or straw frame, but it requires more time for construction. The greens are either wired in place or the wire frame is filled with moist sphagnum and wrapped with green plastic, with the greens then being inserted through the plastic.

Another method for using a wire frame is called a hillman. This type of base is made using a nine-gauge wire. Cross pieces of wire are attached to each other by using a special piece of equipment that will clamp them together or by using pliers. Gather the evergreens in bunches of four or five sprigs about six to eight inches long, then clamp a cross piece firmly around the bunch.

Grapevine wreaths are another type of wreath frame that can be used when constructing wreaths. Cut the sprigs of evergreens six to eight inches long. In bunches of three or four, insert them in between the spaces of the grapevine. Wire or glue them into place to attach them firmly.

Tips for Making and Decorating Wreaths

When making a wreath, remember a few important tips.

1. It is best to start the greens at one point and from there work in one direction. If a crescent accent is used, begin the design in the center and work outward in each direction.

2. Set the wreath up or secure it to an easel when working on it to give the proper perspective.

3. When using silk flowers or other artificial materials, dip the stems into glue before sticking them into the wreath frame.

Some pointers should always be kept in mind when decorating wreaths.

1. The focal point is usually the bow. Gather the major decorations around it.

2. If a large decoration is used, such as a stuffed animal, place it at the bow and secure it firmly.

3. If other smaller decorations are used, it is better to keep them together than to scatter them.

4. To add further interest, try looping the ribbon around the wreath.

Creating a Wreath with a Styrofoam™ or Straw Base

The materials needed for the procedure include a Styrofoam™ or straw wreath frame, evergreens, greening pins or small pieces of wire bent into hairpin shapes, ribbon (usually #40), and various decorations for the wreath.

1. Cut the evergreens into six to eight inch lengths.

2. Gather several pieces together (usually three).

Figure 6.1 - Inserting Greening Pin

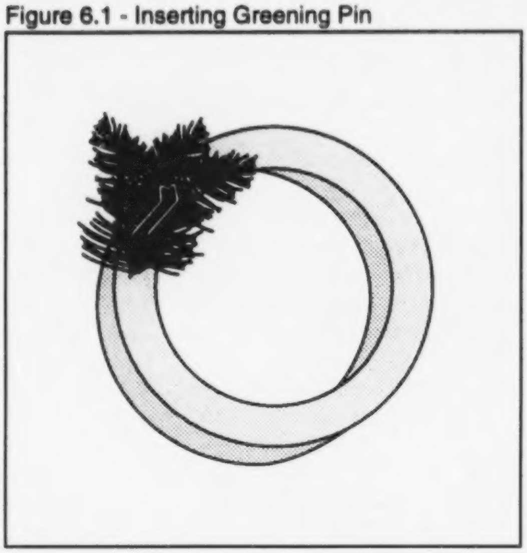
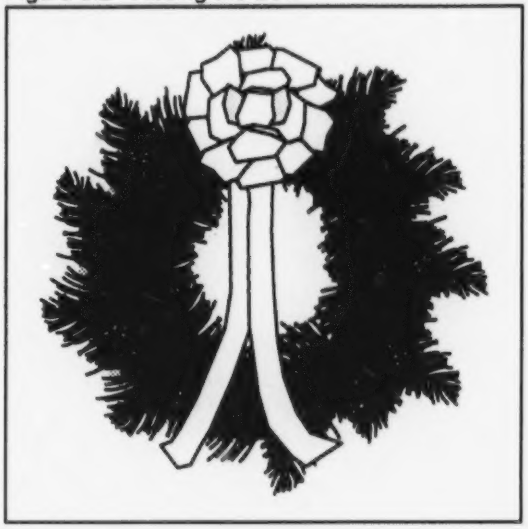


Figure 6.2 - Adding the Bow



3. Anchor the pieces firmly into the wreath frame with the greening pins (Figure 6.1).

4. Continue until the wreath frame is covered, being sure to overlap the greens. Pin each successive bunch of greens so that they cover the pin from the previous bunch. Moving in one direction, continue around the frame until the entire wreath frame is covered. No holes or gaps should be visible.

5. If some sprigs are too long and stick out, trim them after the wreath is completed.

6. Make a bow using #40 ribbon. The material used for the ribbon will depend on whether the wreath will be used indoors or outdoors. If the wreath will be placed outside, be sure to use weather-proof ribbon.

7. Tie off the ribbon with heavy wire (about #18).

8. Wire the ribbon into the wreath with the wire coming out the back so that it can be twisted into a hook for hanging (Figure 6.2). If the ribbon is to be off center, then use another piece of wire for the hook.

9. Wire or glue decorations onto the wreath. If the decorations are heavy, be sure to wire them onto the wreath. Pine cones are commonly used in Christmas wreaths and are an example of a decoration that should be wired on. Lighter decorations can be glued.

Summary

Wreaths are popular decorations purchased throughout the year, although they are especially in demand at Christmas. In order to meet this demand, the florist needs to know what materials can be used for making wreaths as well as how to construct and decorate them.

Credits

Anderson, Gary A. *Floral Design and Marketing.* Columbus, Ohio: Ohio State University, 1988.

Griner, Charles. *Floriculture Designing and Merchandising.* Albany: Delmar Publishing Inc., 1995.

Hunter, Norah T. *The Art of Floral Design.* Albany: Delmar Publishers Inc., 1994.

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Lesson 7: Silk Arrangements

Many permanent or "silk" flowers are available on the floral market today. These silk flowers resemble natural flowers remarkably and are quite durable. The quality and variety of the permanent flowers that are available are constantly improving.

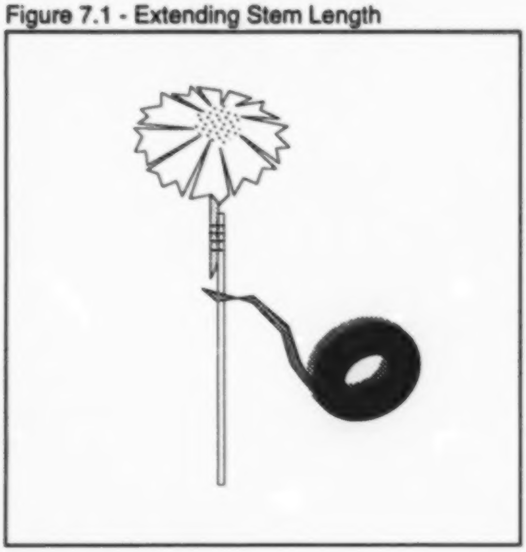
Differences between Silk and Fresh Flowers

Silk arrangements are constructed in much the same way as fresh arrangements except for a few basic differences. Silk flowers must be prepared for use by bending them into their natural shapes. When silk flowers are shipped, they are often tightly packed into boxes. The better silk flowers have individually wired petals and leaves so they can be shaped.

Silk flowers are available in a wide variety of colors. Some silk flowers do not have a counterpart in nature. While fresh flowers are limited in availability during certain seasons of the year, silk flowers are available year-round.

The stems of silk flowers have an added advantage in that they can be lengthened or shortened for the desired design (Figure 7.1). If the stems are too short, the designer can easily add more length to them by adding wire, a wooden pick, a hyacinth stake, or part of a stem from another flower. Because the stems of silk flowers are made of wire, they can be bent into the desired shapes.

Figure 7.1 - Extending Stem Length



Arranging Tips

Silk arrangements are designed to last for a very long time, so the designer must use extremely good construction. Each flower stem should be glued into place in the arrangement, which is usually accomplished by dipping the stems into pan melt glue.

When arranging with fresh flowers, the floral foam is "greened up," or covered with foliage. This step is too expensive for silk arrangements, though. Instead, the foam is covered with sheet moss or Spanish moss. If sheet moss is used, it is easier to wet the moss and allow it to conform to the side of the dry floral foam. Do NOT glue sheet moss to the foam since this will make it difficult or even impossible to stick the stems through the glue. As the stems are inserted, the moss will help hold them in place.

Multiple-stem silk flowers usually include flowers at all stages of development. Cut these apart to make the best use of them. Silk bushes can be economical because they have a lot of foliage as well as flowers. Silk bushes should also be cut apart. Save any unused greenery or stems for future arrangements. Use wire cutters to cut the stems. Do not try to use regular scissors.

If a stem is not stiff enough to pierce the foam, use a pick machine to put a pointed steel pick on its end.

Constructing a Silk Arrangement

1. First choose the basic shape of the arrangement. The shape is somewhat dictated by where the finished arrangement will be placed. The size of the arrangement also depends on its placement.

2. Choose the colors and flowers to use in the arrangement. Again, the colors of the surrounding area will help determine the color of the arrangement. The season is also a determining factor in both the color and the type of flowers used.

3. Select a container that will complement the flowers and their surroundings. The container must also be in proportion to the size of the flowers.

4. Assemble the tools and materials to be used.
   a. Dry foam and Styrofoam™ are the two major holding devices used in silk arrangements. Styrofoam™ is stronger, but it is difficult to stick weak stems into it.
   b. The type of container influences the type of anchoring needed for the foam. Some containers are made so that foam can be wedged into the container without further anchoring. However, it may be necessary to glue the foam or an anchoring pin or two into some containers. Some containers require a few strips of oasis tape to secure the foam.
   c. Some silk flowers have sufficient amounts of foliage on the stems. However, you often need to purchase extra silk foliage or use some you have saved to complete an arrangement.
   d. Sheet moss or Spanish moss does not need to be glued to the foam. Instead, use a fern pin or a greening pin to help hold the moss while arranging the flowers. Once several stems have been inserted, no further pinning is usually required.
   e. Wire cutters are necessary because most silk flowers have wire stems.
   f. Melted pan melt glue is also needed.

5. Anchor the holding device in the container.

6. Cover the holding device with moss.

7. Dip the ends of the flowers in pan melt glue before inserting them into the foam.

8. Arrange the flowers in the desired shape.

Summary

Silk or permanent flowers are an excellent addition to a flower shop. They fill specific needs for customers. Designers should know the differences in arranging fresh and silk flowers and be able to construct silk arrangements that will fill their customers' needs.

Credits

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Lesson 8: Dried Arrangements

A customer's needs may sometimes be better met with a dried arrangement rather than fresh or silk flowers. While the preserved plant material usually does not have the traits of the fresh material, it may be used for flower arranging and presentation in ways that the fresh flowers could not.

Techniques for Preserving Fresh Flowers and Foliage

Several different techniques can be used to preserve fresh flowers. They include drying, glycernizing, skeletonizing, and pressing.

Drying - Flowers can be dried by two methods, air drying and silica gel.

To air dry flowers, gather them in small bunches, then bind them together with a rubber band. Because the stems shrink when they dry, a rubber band will continue to hold them together. The flowers should be hung in a dry, dark place until completely dried, usually for two to three weeks.

Silica gel is a white, sandy material with little indicator crystals. The crystals are blue when dry, but turn pink when they have absorbed moisture. To use this drying method, carefully place the flowers in the silica gel and gently sift it in and around the petals. This step is important because the petals will be in this same position when they dry. Silica gel dries flowers in only two to three days. To make this drying method even faster, flowers can be placed in the microwave, provided that they are not wired. Flowers can also be dried by burying them in clean, fine sand, borax, or a mixture of cornmeal and borax. However, silica gel has the advantages of speed and more natural looking flowers.

Glycerinizing - Glycerin is a colorless liquid that is made from fats and oils. Glycerinizing is a method of preservation that mixes one part glycerin to two parts water to preserve foliage. Stems are placed in this solution until they have absorbed enough of the glycerin that the leaves are pliable. Dyes can be added to color the foliage.

Skeletonizing - Skeletonizing is a process in which the leaves are boiled with boric acid until all the "flesh" of the leaves is gone, leaving only the veins of the leaves.

Pressing - Pressing flowers is probably one of the oldest methods of preserving flowers. It usually works best to place the flowers between two layers of old newspaper, followed by blotter paper on each side of that, then a layer of cardboard on each side, with a heavy weight placed on them. In lieu of these layers of paper and cardboard, old phone books work extremely well. Be careful not to dry too many flowers at one time since moisture can build up and cause mold.

Constructing a press is simple, often easier than piling stacks of books on top of papers. To construct a press, begin with two like-sized pieces of plywood. It works best if the plywood is the same size as the papers to be used for pressing. Drill a hole in each corner of the plywood. Insert long screws through the holes, then screw a wing nut onto the ends so the two pieces of plywood are pressing the paper and flowers in between them.

Considerations for Designing with Dried Flowers

Dried arrangements are constructed just as silk and fresh designs are. The designer does need to keep a few special considerations in mind, though, when constructing dried arrangements.

1. Dried flowers are often on their own dried stems. These stems are more brittle and less permanent than those of silk flowers.
2. Some stems may be very weak as well as brittle. To arrange these flowers, it may be necessary to use a pick machine and attach metal picks to the stems. Several flowers are usually grouped together when picks are used.
3. A softer dry foam is available for easier insertion of dried stems.
4. As with silk arrangements, cover the foam with sheet moss or Spanish moss.

5. Stem lengths can be increased by adding wire or taping picks.

6. Since dried flowers are often on their own dried stems, the stems are not able to bend.

7. Most dried flowers are lightweight, so it may be necessary to use a heavy container or to add weight to a lightweight container such as a basket to keep the container upright.

Constructing a Dried Arrangement

To construct a dried arrangement, several steps are required.

1. Choose the desired shape for the arrangement. Where the arrangement will be located influences the shape and colors chosen for the arrangement.

2. Choose the colors and types of dried flowers and the other material to be used.

3. Select a container that complements the arranging material.

4. Assemble the tools and materials that will be used.
    a. Gather dry foam or Styrofoam™. Because Styrofoam™ is much stronger, it can be used when designing with thick or heavier stems. However, it is difficult to pierce with the more fragile stems. Either the softer dry foam must be used or all of the weaker stemmed material must be picked.
    b. Choose the anchoring device, using the same principles described for choosing such materials for silk arrangements.
    c. Gather the dried flowers and material, sheet moss or Spanish moss, fern or greening pins, wooden or metal picks, and the melted pan melt glue.

5. Anchor the holding device in the container.

6. Cover the foam with sheet moss or Spanish moss. If necessary, use fern pins or greening pins to keep the moss in place.

7. Plan the arrangement by placing flowers in the desired shape before gluing them.

8. Dip the stem of each flower into the glue and insert it into the foam, arranging the flowers.

Summary

Arranging with flowers that have been preserved is generally quite similar to arranging with fresh or silk flowers, with a few exceptions. The most notable exception is that the stems of dried flowers are brittle and cannot bend.

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Lesson 9: Dish Gardens

Customers often want live green plants as opposed to fresh cut flowers or flowering potted plants. One of the more popular methods of marketing live green plants is to plant several of them together in one container. This type of design is called a dish garden.

Factors to Consider in Selecting Plants

Several factors should be considered when selecting plants for a dish garden. It is of utmost importance that all plants are compatible in their cultural requirements. They need to have the same requirements in light intensity, watering needs, and temperature. For example, cacti and other succulents, which do not require much water, should not be mixed with other green plants. Other considerations include height and rate of growth. Plants should also be chosen for their forms, colors, and textures so they will be a good contrast when planted together.

All too often, plants that are too diverse are crammed together in a container that is too small. While this may have an immediately attractive effect, over time the plants will deteriorate and the customer will be unhappy.

Components of a Dish Garden

A dish garden has a number of important components.

An appropriate dish garden container should not detract from the plants, but rather complement them. Dish gardens are planted in low, shallow containers that are usually four to six inches deep. Dish garden containers usually have no drainage holes.

Gravel or pebbles are placed in the bottom of the dish garden for drainage. A fine gravel works best, preferably aquarium gravel.

Regardless of what kind of potting "soil" is used in the dish garden, the medium should be sterile, free from disease and weed seeds. A light, well-drained soil or a growing medium such as ⅓ peat moss, ⅓ vermiculite, and ⅓ perlite works well.

Ideally, the plants used in a dish garden are small and able to be grouped together. Plants with vast numbers of roots are not well suited for dish gardens.

Sheet moss is used to cover the soil to finish off the dish garden and add the look of grass.

Plant Shine® or some form of material that will help gloss the leaves improves the look of a dish garden.

Accessories or decorations can also be added to the dish garden. They can include holiday picks, bows, fresh flowers, or even ceramic animals.

Constructing a Dish Garden

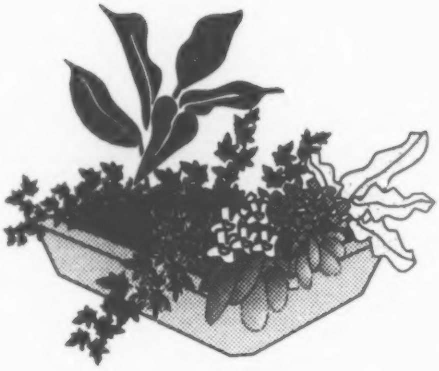
When constructing a dish garden, certain steps need to be followed.

1. Select the appropriate container.
2. Make sure the container is clean. A clean container is important not only for the sake of attractiveness, but because plant diseases may be present in a dirty container.
3. Cover the bottom of the container with half an inch of gravel or pebbles to allow for drainage and to help keep the plants from being over watered.
4. Fill the container halfway with a sterilized medium.
5. Gently remove the plants from their pots. If possible, try not to remove too many roots.
6. Following the principles of design, place taller plants toward the back of the dish and shorter ones in front. Place them on the medium, being careful not to place them too close together. Carefully fill the container with a sterile potting medium. Make sure there is potting medium in and around the roots of the plants. Sometimes a pencil can be used to gently fill in the soil around the roots.

7. If necessary to cover all the plant roots, fill the container almost to the top with more of the medium.
8. Press the potting medium firmly around the plants.
9. Water the plants, being careful not to over water them.
10. Cover the medium with sheet moss.
11. Clean the plant leaves with a commercial cleaner (such as Plant Shine®) or a soft damp cloth.
12. Fresh flowers, such as chrysanthemums or miniature carnations, can be placed in water picks and added to the dish garden. Silk flowers can be stuck directly in the soil. A seasonal accessory, like a holiday pick or bow, can also be added.

Figure 9.1 shows a completed dish garden.

Figure 9.1 - Dish Garden



Summary

Flower shop employees should master the steps for constructing a dish garden. Selecting the proper plants for the garden is especially important in creating an attractive design and ensuring the health and longevity of the plants used.

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Lesson 1: Sales Transactions

Being a successful salesperson requires skill and knowledge of sales and procedures. If a florist's employees are not able to handle customers successfully, they will not be successful on the job. In *Secrets of a Winning Personality*, the author writes that if a person is friendly, other people feel wanted and appreciated. To have a winning personality—and be a good salesperson—you must first truly LIKE people. A good salesperson LISTENS to customers and is sincerely interested in them and what they want.

The first impression presented by the flower shop and its employees will make a lasting impression on the customer. Employees must always remember that without the customers, the flower shop will not stay in business.

Sales Transactions

Customer service begins when the customer enters or phones the florist shop, and it does not end until the customer is completely satisfied. Salespeople must be friendly and enthusiastic about their jobs and the products they sell. Good communication skills are essential. Salespeople need to be knowledgeable about the services the shop provides, the products offered for sale, suggestions for designs and plants, and price ranges.

The first thing a successful florist shop employee must do is to *greet customers* as soon as they enter the shop. No one likes to be ignored, and a quick greeting establishes that the shop is a friendly place to be.

If customers want assistance, *ask questions* about their needs and try to fill them. The salesperson must determine how to help customers focus their attention. Questions will help *determine their needs*. Sometimes customers are not quite sure what they want, and questions may help them. *Give them suggestions* and assist them in making decisions. If customers have objections, asking questions and making suggestions can assist in *overcoming their objections.* Give customers several choices if possible. However, do not give customers too many choices because they may cause added confusion.

After helping customers make their choices, *close the sale.* Many sales are lost because the salesperson does not offer to "write up the order" or nudge the customer into making a decision. When the order is complete, thank the customer for their order.

Florist Wire Services

"Flowers by wire" is an expression that no longer means what it once did. The first wire service, Florist Transworld Delivery (FTD), used "wires," or telegraphs, to send orders to member florists. Today, all orders are sent via telephone, computer, or fax machine.

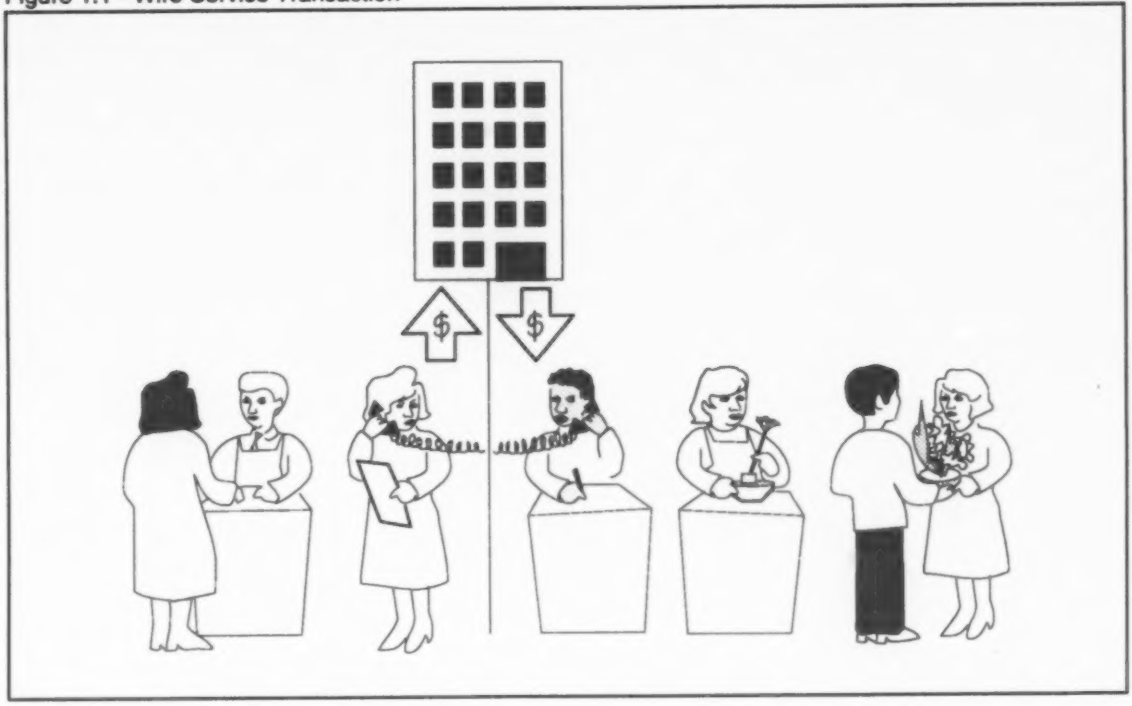
Florist wire services are clearinghouses through which a florist in one city sells an order for delivery in another city, state, or even country. The person ordering the flowers pays for the flowers ordered plus a delivery charge, service charge, and sales tax. The sending florist then sends the order via telephone, computer, or fax to a florist at the desired location. The receiving florist then fills the order and delivers it. The order is then sent to the wire service clearinghouse, which processes all the business transactions between member florists. See Figure 1.1.

Each member florist receives a monthly statement from the wire service clearinghouse with a bill or a payment for the orders processed by that florist. The sending florist receives between 10 and 20 percent of the value of the order. The wire service keeps five percent. The receiving florist must fill the order at full value, but will only receive 75 percent of the value of the arrangement.

Florist wire services are extremely valuable organizations for flower shops to join. Some of the more popular wire services include the following businesses.

- Florist Transworld Delivery (FTD)
- American Floral Services (AFS)
- Redbook
- Telefloral
- Florifax International
- Carik Services, Inc.

Figure 1.1 - Wire Service Transaction



FTD maintains a computer network for member florists called the Mercury network. Orders are placed on the computer, and both sending and receiving florists receive a printed copy of the order.

Most wire services print membership directories that look like large phone books and list all subscribing florists by city. If more than one florist in a city belongs to the same wire service, their names may be rotated each year the directory is printed. Each member florist is also identified by a code number.

A selection guide is also provided to each member florist. The guide provides pictures of arrangements for various occasions and seasons that will be available at the various shops. Customers may look at these guides and order arrangements from them.

Florists often join several wire services, but they must pay a fee for each one to which they subscribe. Most wire services have strict regulations and guidelines that member florists must meet and adhere to or they will lose their membership. Upon application for wire service membership, the shop will be inspected to make sure all orders sent to this shop will be of exceptional quality.

Wire services also offer wholesale merchandise that is part of the arrangements they promote. In addition, they provide educational material and classes for members and publish magazines. Some of the more popular wire service magazines include the following.

- *Florist* (FTD)
- *Flowers&* (Teleflora)
- *Design for Profit* (Florifax)
- *Professional Floral Designer* (AFS)

A more recent addition to the floral market is a service called 1-800-FLOWERS. Customers are encouraged to call the agency directly, but the service acts as an agent and transfers the order to flower shops to be filled and delivered.

Taking a Wire Service Order

If an order is received through a wire service, be sure to include the sending shop's wire service number in the order. When sending a wire service order, include the name, address, telephone number, and wire service number of the receiving shop.

Customer Complaints

Customers commonly complain about some specific areas of the florist's services.

- The flowers were of poor quality or did not last well.
- The delivery was late or was not received when expected.
- The florist had to substitute flowers different from those ordered.
- When orders are taken over the telephone, customers sometimes have difficulty visualizing what a florist describes. They can be disappointed if the order turns out to be different from what they expected.

Handling customer complaints is sometimes a difficult task, but one that an employee must be able to do tactfully. If a complaint is not handled satisfactorily, then that customer will not return to the shop. Customers often tell their friends about poor service they have received from a shop.

Most shops have a definite policy for employees to follow when handling customer complaints. While they vary, most policies follow these general guidelines.

- Some florists unconditionally guarantee their flowers. Others will make price adjustments only within 24 hours of delivery.
- Every shop needs a return policy outlining the amount of time a product can be returned for a refund, credit, or exchange.
- Some florists request customer opinions. Their opinions can be learned by enclosing a card stating "Let us know if this arrangement does not meet your expectations" with the order.

Employees should follow some simple guidelines for dealing with customers who are upset. They should listen to the customer's entire story without interrupting and then repeat the major points, showing that they have been listening. The employee receiving the complaint should remain calm, using relaxed body language and a calm tone of voice. Employees should not make excuses or minimize the problem; instead, they should try to assure the customer that they will find the cause of the problem and keep it from happening again.

Although customers may not always be right, the employees of the florist shop need to agree with them rather than arguing. Arguing with customers does not pay, since it will only aggravate them further. Instead of arguing, employees should thank them for telling them about the complaint and bringing the problem to their attention.

The goal when dealing with customer complaints is to always resolve the problem as positively as possible. One way to accomplish this goal is to ask the customer how he or she would like to solve the problem.

If employees find that they are unable to handle a customer complaint, they should always ask the manager to step in and handle it. Customers sometimes ask for the manager if the situation is not being handled to their satisfaction; therefore, it is better to request the manager's assistance before the customer does. Having the manager handle the complaint shows the customer that his or her concerns are important.

After a complaint is made, employees should try to determine what caused the customer to complain in order to avoid such situations in the future, if possible. In the case of a customer who is unhappy with a delivery, for example, have the delivery person return the defective flowers to the shop. Very often, only one or two flowers will be wilted in an arrangement. Improper handling by the customer is sometimes the reason for defective flowers. Customers need to be educated about the fragility of flowers. Replacing or refunding the purchase may still be necessary even though the florist is not at fault.

Sometimes it will be impossible for the florist to inspect the flowers of an order, as in the case of funeral flowers or a corsage. If a customer is unhappy with such an order, making an adjustment in price or giving extra value on another order will be necessary.

Telephone Etiquette

Because 75 to 80 percent of a florist's business is conducted over the telephone, good telephone skills are imperative. It is extremely important for all employees to use proper telephone etiquette. The image telephone customers have of the florist shop is formed by what they hear when speaking to the salesperson.

Make sure to keep an order form, pen, and pencil by the telephone. Many florists keep a pen on a chain by the telephone so that it is always handy for taking an order. Customers despise waiting while a clerk hunts for a pen to take their orders!

Always answer the telephone promptly. When flower shop employees answer the phone, they should state their name and the name of the shop: "Dot's Flowers, this is Jane. How may I help you?" Florists will sometimes use a greeting related to a holiday. For example, "Merry Christmas!" or "Season's Greetings!" may be added to the customary telephone greeting.

Determine the name of the customer. If necessary, write the name down to avoid forgetting it. Address the person by his or her name during the conversation or sales transaction. Speak in a friendly voice, but do not be overly familiar with the customer because it offends some people.

Take the order as efficiently as possible. Do not tie up the telephone line any longer then necessary, and never keep the customer waiting.

Filling out a sales slip is EXTREMELY important because it contains all of the information for the floral order, the cost, and the location for delivery if requested. Be sure to fill out the sales slip completely.

When taking a telephone order, the flower shop employee must be very careful to make sure that the order is complete, the instructions are clear, and the order is legibly written. Designers do not have the time to decipher someone's messy handwriting, especially during rush seasons.

After an order is completed, it goes to a designer to be filled and then to a delivery person for delivery.

Here are some tips for using the telephone.

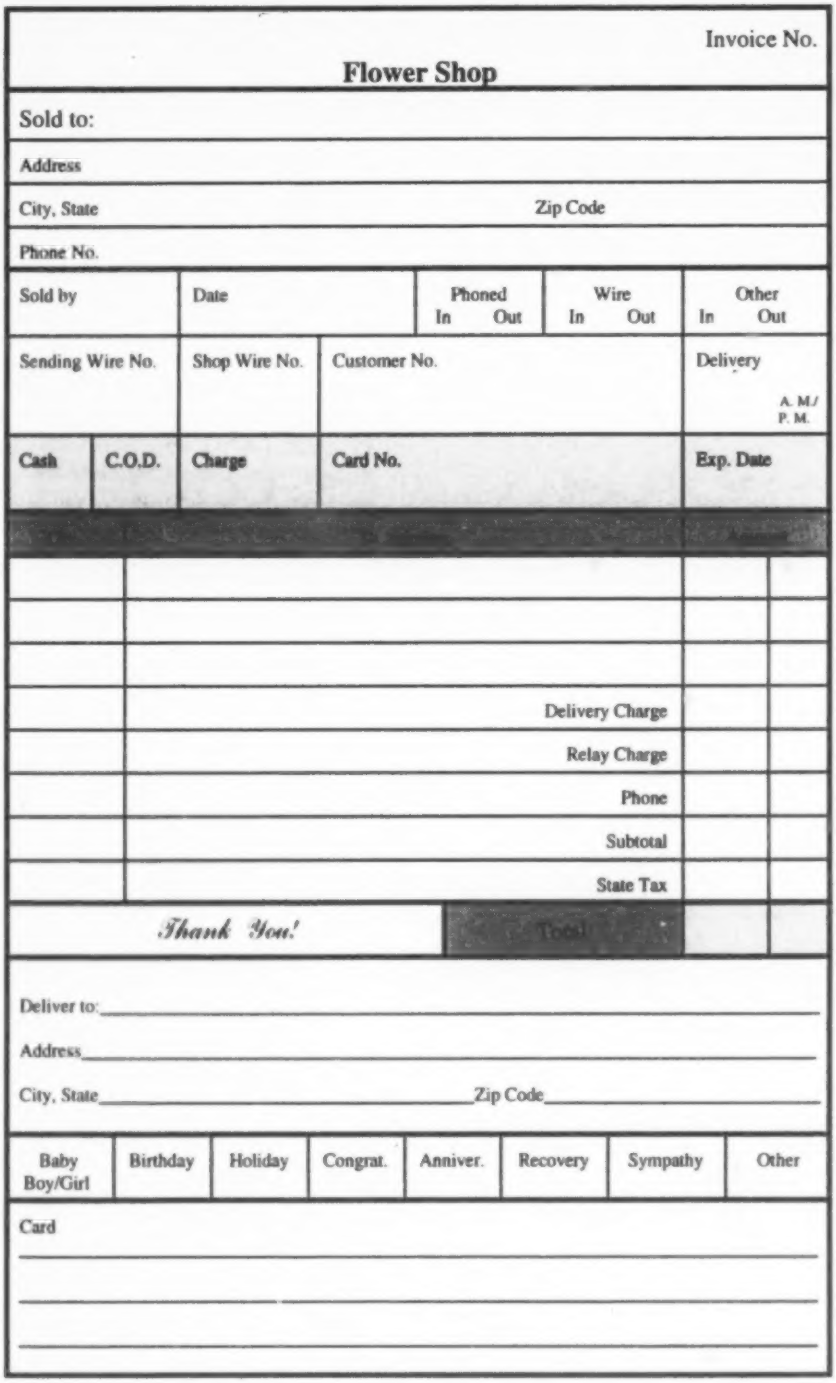
- Answer promptly, by the second ring if possible.
- Speak clearly and distinctly (do not slur words) with a smile in your voice. A smile and friendly voice will project onto the conversation. Never sound annoyed at having to answer the phone.
- Use the customer's name if it is given.
- Do not keep the customer waiting on the line.
- Do not eat, chew gum, or drink while talking on the telephone.
- Avoid coughing into the telephone.
- Never drop the receiver while the customer is on the line.
- Always let the customer hang up first since he or she may think of something else to order.
- Repeat the order back to the customer to eliminate mistakes. Re-emphasize what the customer ordered.
- On funeral orders, it is in poor taste to say, "Thank you." Instead, close with, "We will make sure to take good care of this for you."

"May I Take Your Order?"

When taking a floral order, whether over the telephone or in the shop, it is extremely important for the salesperson to record the proper information. The information needed on a sales slip (Figure 1.2) includes all of the information regarding the sale and delivery of the order.

- The date the order is taken
- Customer's name, address, and telephone number
- Information for pick up or delivery
- For deliveries, the recipient's name, address, and telephone number

Figure 1.2 - Sales Slip



Invoice No.

Flower Shop

Sold to:

Address

City, State Zip Code

Phone No.

Sold by	Date	Phoned In Out	Wire In Out	Other In Out

Sending Wire No.	Shop Wire No.	Customer No.	Delivery A. M./ P. M.

Cash	**C.O.D.**	**Charge**	**Card No.**	**Exp. Date**

[illegible]	[illegible]	Amount	
	Delivery Charge		
	Relay Charge		
	Phone		
	Subtotal		
	State Tax		
Thank You!	Total		

Deliver to:________________________________

Address________________________________

City, State__________________Zip Code____________

Baby Boy/Girl	Birthday	Holiday	Congrat.	Anniver.	Recovery	Sympathy	Other

Card

____

____

____

BEST COPY AVAILABLE

- Delivery date (if possible, include whether morning or afternoon delivery is preferred)
- Clear instructions
- Special instructions
- Purpose (ie. birthday, wedding, funeral, etc.)
- Message for the enclosure card
- List and number of items ordered
- Description of how the order should be processed
- Price of each single item, with the extended price multiplied from it
- Subtotal
- Telephone charge (if it is a wire service order)
- Delivery charge
- Sales tax
- Total
- Form of payment
- Name of salesperson
- Name of designer filling the order

The information about the customer and the recipient is valuable in case questions about the order arise. Occasionally, certain items are unavailable when the shop attempts to fill an order. If possible, check with the customer before making any substitutions in an order.

If an order is taken in the shop, customers will often write out and sign the enclosure card themselves.

The number of items ordered and how they should be processed are vital pieces of information on a sales slip. They should be written similar to this example: "One dozen roses--arranged." If more than one of the same item is purchased, the cost of a single item is recorded, then the extended price is figured, as in the following example.

2 orders of one dozen roses--arranged
1 order = $45 × 2 = $90

It is also important to mark on the sales slip if the order is to be picked up by the customer. The flower shop certainly does not want the order to be delivered by mistake!

It is imperative to clearly mark the form of payment. If the order is charged, be sure to include all of the information needed to process a charge card transaction or an addition to a charge account at the shop. Employees also need to be very familiar with the shop's policy on accepting personal checks.

The order should be recorded in duplicate and sometimes triplicate. One copy should always be given to the customer.

The employee taking the order should be sure to initial or write his or her name on the order. Identifying who took a particular order can help if there are any questions about the order later. The designer can direct question to that person rather than bothering the customer.

Summary

Taking orders either in person or over the telephone is an important skill for any flower shop employee. Many things need to be remembered when filling out a sales slip.

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Lesson 2: Floral Delivery

Delivering arrangements and flowering potted plants is a service that is often offered to floral customers. It is especially appreciated when the order is for someone in the hospital or for a funeral. Wire service orders, of course, must be delivered.

By offering delivery of flowers, the florist is offering a service that will not only be an aid to the customer, but is also an excellent advertising tool. Therefore, it is of utmost importance that the delivery person be neat, efficient, and courteous while completing the delivery in an efficient and timely manner.

Importance of a Good Delivery Person

The delivery person is an extremely important representative of the flower shop. This position generally offers the lowest pay, yet his or her service is just as important as that of any other employee. Delivering flowers is hard work, especially during inclement weather and in heavy traffic. Often the delivery person is the only one with whom the customer has contact. The delivery person is the public relations connection between the recipient of the delivery and the flower shop. If a delivery is not handled well, the good sales work and the designs of the other employees will be in vain. Good delivery service can make the difference in whether or not a flower shop stays in business.

Some flower shops do not offer delivery services. These shops can charge less for their arrangements since they do not incur the expenses of a delivery vehicle and driver. Others have extra charges for delivery, and most require a minimum dollar amount for an order before they will deliver it.

Delivery Person Skills

A good delivery person will possess the following skills.

Driving and vehicle maintenance skills - A good delivery person is a safe driver. Accidents are expensive and can increase the flower shop's liability and automobile insurance. They can also put the delivery vehicle out of commission for some time.

This person should always have a courteous attitude, not only in person, but also when driving. Most delivery vehicles advertise the name of the flower shop on the sides of the van. If the driver is discourteous, it reflects badly on the shop.

The driver must keep the delivery van clean and in good running condition. Time and money are lost if the delivery vehicle breaks down.

The delivery person should know the delivery area. Drivers can waste precious minutes if they do not know the delivery area well and they wander around trying to find the delivery location.

In some states, a delivery person may need a commercial driver's license.

Communication skills - The delivery person must also be able to communicate with people. Customers will often ask questions, and the driver must be able to communicate effectively with them. Drivers should use proper English and good grammar when speaking with customers. Reading, writing, and spelling skills are especially important when leaving notes for customers about where they may find their arrangements. A knowledge of other languages, such as Spanish, may be helpful in some areas.

The delivery person must also know how to dress properly and be neat and well groomed. Some shops provide their drivers with uniforms. Uniforms should be clean and well pressed. A neat and professional appearance creates a favorable impression of the shop.

Floral skills - The driver may need some arranging skills as well. Arrangements may sometimes be damaged during transport. If the driver does not have time to return the arrangement to the shop, he or she must make the repairs.

Drivers should be able to identify the flowers they are delivering and answer customer questions. Customers often ask questions about the arrangements they receive, and they may even ask how to care for them.

Drivers need to know which flowers cannot tolerate extreme temperatures so they can take measures to protect them. These actions can help ensure that flowers arrive in the best condition.

Routing an Order

Learning to route an order is very important for a delivery person to be truly effective. The steps in routing an order are as follows.

1. Sort orders according to the date of delivery.
2. Sort orders according to the time they are to be delivered.
3. Sort orders according to where they are to be delivered
4. Place the deliveries in chronological order.
5. Route the deliveries on a route sheet with minimum mileage.

Special orders are orders that MUST be delivered at a specified time. The delivery person should make sure that they are marked clearly.

Steps in Making a Delivery

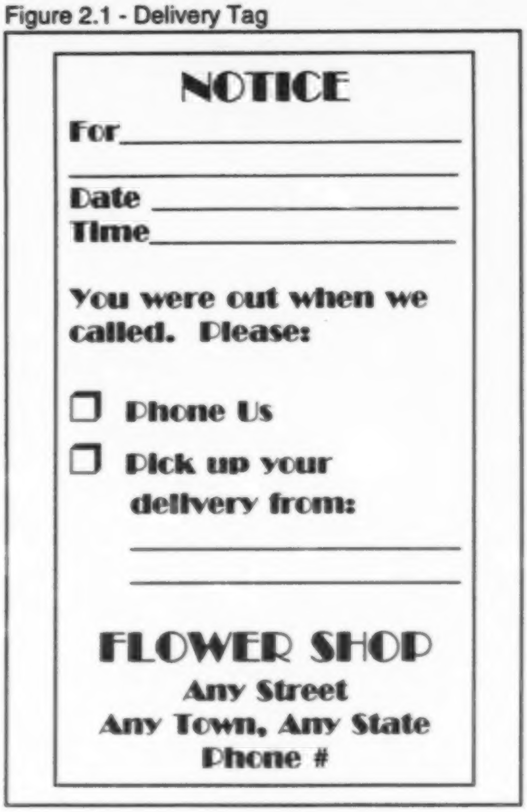
1. Sort orders according to time and area of delivery.
2. Plot a route.
3. After establishing a route, make a list of stops in order of first delivery, second delivery, etc. Put the list on a clipboard and place it by the driver's seat.
4. Some flower shops call private residents to check if someone will be home to accept the delivery. For hospital arrangements, call to make sure recipients are still patients and are able to accept flowers.
5. If the weather is extremely warm or cold, start the delivery vehicle 10 to 15 minutes before loading it.
6. Pack the vehicle, making sure that items to be delivered last are loaded first. Keep taller arrangements to the sides. Place balloons in garbage bags for their protection during delivery and to keep them from floating freely in the vehicle.
7. Make sure the arrangements are not going to fall over during transport. They should be packed in cardboard delivery bases or put in boxes with wadded up newspaper, sandbags, or tissue paper wedged around them.
8. Make sure the address for each arrangement is easy to see and read.
9. When arriving at the delivery site, always go to the front door unless instructed otherwise.
10. Carry a one-sided arrangement with the front of the arrangement facing the customer.
11. Knock on the door or ring the doorbell. When the door is answered, greet the recipients cordially, give your name, and inform them they have a delivery from the flower shop. Briefly give a tip that they should add water to the arrangement every day. Answer any questions they might have about the arrangement or plant. Ask for a signature.
12. If no one is home to receive the arrangement, follow shop policy. Delivering the arrangement to a neighbor and leaving a note or delivery tag (Figure 2.1) on the recipient's door informing him or her where the arrangement is located is often acceptable. Later, call to make sure that the arrangement was received.

    Another alternative is to leave a note on the door with notice of the attempt to deliver, asking the recipients to call the shop or come in and pick up the arrangement. Return the arrangement to the shop.

Types of Delivery Services

Florists have several options about delivery. Most opt to deliver their own orders, but this practice has both pluses and minuses. With this option, the florist has the expense of paying a driver as well as purchasing a vehicle and all the expenses that

Figure 2.1 - Delivery Tag



NOTICE

For________________________

____

Date ______________________

Time_______________________

You were out when we called. Please:

☐ **Phone Us**

☐ **Pick up your delivery from:**

____

____

FLOWER SHOP

Any Street
Any Town, Any State
Phone #

go with operating it. However, the florist does maintain control over the delivery.

In very large cities, florists sometimes form cooperatives. They meet at a central location once a day and pool their arrangements. Then, each shop delivers all the arrangements going to a certain area, which is more cost effective than driving long distances.

Commercial delivery services often work well for smaller florists with low volumes of deliveries. The florist usually pays the service by the arrangement, but additional fees are paid for deliveries that lie outside the delivery area.

Some florists hire a runner or jumper during the holidays. This person assists the driver by reading the map, checking off the delivery sheets, and carrying the arrangements to the recipients. If the weather is very cold, the runner can see if the recipient is at home without standing outside in the cold with the delivery, freezing the plants or arrangements to be delivered.

Some florists keep a record of signed receipts for every delivery. The delivery person has the recipient of the arrangement sign a receipt stating that it was received. The florist keeps this receipt in a file for a period of about three months. Keeping receipts is especially useful for wire service deliveries. If there is ever a question about whether a delivery was made, the florist only has to turn to the file and see who signed for it.

Redbook's *Retail Flower Shop Operation* suggests a delivery kit in which they list the following items.

1. Local phone book
2. Street guides
3. City map - mounted and laminated on a board
4. Non-delivery tags
5. Pens, pencils, and note pads
6. Magnifying glass
7. Jumper cables and basic vehicle repair tools
8. Basic florist repair tools
9. Inclement weather gear
10. Blanket
11. Insurance and vehicle identification cards
12. Clock
13. Change for tolls and telephone
14. Cloth for cleaning spills
15. Jug of water

Summary

Having a good delivery person is important in order for a flower shop to maintain good customer relations. The delivery person must have certain basic abilities, such as driving and vehicle maintenance ability, communication skills, and floral skills, and must be able to plot a route and make a delivery correctly and efficiently.

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Lesson 3: Calculating Prices

In order to make a profit, florists must know how to price their merchandise. Employees should also know how prices are determined. With many flower shops and other outlets selling flowers, figuring a reasonable price may not be easy.

Determining Prices for Floral Arrangements

Many factors influence florists when they determine the prices of items in their shops. If florists ignore any of these considerations, then their shops will not be profitable and will soon go out of business.

When pricing an item for sale, the wholesale cost of materials is the first factor to consider. The net cost and the cost of freight or any delivery charge should be considered as well.

Overhead costs are the next major consideration. The labor of the designer is included in overhead costs. Accurate records should be kept for the amount of time it takes to handle or create each item. Overhead costs also include services rendered, the cost of the business, and the cost of out-of-date merchandise, which is merchandise that is no longer useable and must be thrown away or greatly reduced in price. Wholesale costs can also fluctuate greatly from season to season, especially for fresh cut materials, with Valentine's Day usually being the most expensive time. Inventory insurance is another overhead cost, as well as the cost of shrinkage or damage to merchandise in stock. Advertising costs, employee wages, and taxes are also overhead costs.

One consideration that many florists overlook is the profit margin. The profit margin is what a business makes after all expenses are paid. Some other considerations that affect the price of merchandise are competition from other florists and market demand. Each shop's expenses will be different, depending on its location and the market it is targeting.

Determining Prices for Potted Plants

Pricing potted plants and green foliage plants involves many of the same considerations as pricing floral arrangements, except that labor costs will be lower. Remember that potted plants and green foliage plants are alive and can be subject to deterioration if they are not sold quickly. If live plants deteriorate, they must be discarded. This waste must also be considered when pricing items.

Methods of Calculating Prices

Florists primarily use two methods of figuring prices: ratios and percentages. Most florists use the ratio method because it is easier, but the percentage method takes the profit margin into account.

Ratio Method - To figure prices using the ratio method (selling price : wholesale price), merchandise is categorized into four major types.

5:1 ratio - These items require a lot of time, labor, and creative design talent. Examples include wedding and party flowers.

4:1 ratio - The designs require some labor and design ability. An example is a regular corsage.

3:1 ratio - These designs require very little labor. Examples include small arrangements, bud vases, and decorated plants.

2:1 ratio - The designs require little or no design labor. Examples include pre-made cut flower bouquets, gift items, and undecorated plants.

To calculate the selling price of a floral product using the ratio method, multiply the wholesale cost of the item by the proper ratio amount. For example, the wholesale cost of one floral product is $4.50. It ranks as a 3:1 ratio item. To calculate its selling price, multiply the wholesale price of $4.50 by the ratio amount of 3.

$4.50	×	3	=	$13.50
(wholesale cost)		(ratio amount)		(selling price)

The selling price of this floral product is $13.50.

Percentage Method - Using the percentage method, the florist determines how much a floral product will be marked up from its wholesale price. The markup is by a percentage.

To calculate the selling price of a floral product using the percentage method, first convert the markup percentage to its decimal equivalent. The conversion of a percent value to its decimal equivalent is completed by dividing the percent value by 100. After converting these numbers, multiply the wholesale price by the decimal value. This number is the markup value. Add the markup value to the wholesale price to find the item's selling price.

For example, a florist wants to add a 100% mark up to one floral product. The wholesale cost of this item was $2.50. The first step is to convert the 100% mark up value to its decimal equivalent.

100 ÷ 100 = 1.0
(percent value) (decimal equivalent)

The decimal equivalent is 1.0.

To calculate the markup value, multiply the wholesale price by the decimal value.

$2.50 × 1.0 = $2.50
(wholesale price) (decimal value) (markup value)

The markup value is $2.50.

Add the markup value to the wholesale price to calculate the selling price.

$2.50 + $2.50 = $5.00
(wholesale price) (markup value) (selling price)

The selling price of the item is $5.00.

In all pricing, it is extremely important to avoid waste as much as possible. If flowers and plants are cared for properly, waste will be minimal and the florist will realize a higher profit. Designers must keep accurate records of the number of flowers and accessories used in arrangements and price them competitively. The best way to do this is to set a price for the arrangement, then select the flowers that will be needed for that arrangement price. These flowers should then be placed together in water before the designer ever begins working on the arrangement. To count the flowers after the arrangement is finished will waste time and add more expense to the arrangement in terms of labor.

Summary

Florists and their employees need to know how to determine prices for their merchandise. They may use either the ratio or percentage method, but should always keep their costs in mind when pricing the items in the shop.

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Lesson 4: Taking Inventory

Good business practices require a complete record of all merchandise sold and the value of the stock on hand. Because flowers and plants are perishable, the florist's stock is turned over almost every day and new stock is brought in. A large part of a florist's capital must be used for purchasing supplies, decorating materials, and accessories. The stock of supplies should be large enough to allow for efficient work at all times. The florist must be careful not to have too much of an item that is not used often, which can needlessly tie up money.

Some florists have one person in charge of inventory control. Others have employees in various departments checking on inventory and reporting to the department manager when inventory is getting low. Larger flower shops keep their inventory on computer. Computerized records enable them to know quickly what is on hand and what was paid for it. All items have a cost and a market value. The cost is what was paid for the item, and the market value is what it costs on the current market. For the purpose of inventory, the florist can use the lowest price.

What to Inventory

An inventory includes all flower shop supplies, related products, accessories, gift items, containers, and plant materials.

When to Inventory

A hardgoods inventory needs to be taken once a year, every 6-8 weeks, or especially prior to a major holiday. Some items need to be inventoried on a daily basis.

The Importance of Inventory

Inventory is important for several reasons. First, taking inventory is necessary in order to help in making a profit by allowing the flower shop to keep merchandise in stock. For his or her business to be successful and profitable, the florist must have items available for purchase.

Inventory must be taken for tax purposes as well as for insurance. It also serves as a guide to determine which items are moving slowly, or are overstocked or understocked. Inventory can help in determining the most profitable items a shop carries and money needs at various times of the year.

Inventory control helps keep high demand items on hand and prevents the shop from having too much of one item.

Turnover

Turnover refers to the cycle of purchasing, selling, and restocking items held in inventory. The florist's goal is to turn over inventory fairly quickly. Quick turnover is a necessity for plant materials, because they are perishable and their value decreases while they are stored. To avoid losses, purchases of plant materials should be made frequently and in small quantities. Hardgoods are turned over less frequently, usually every two to four months, depending on the type of item. Overbuying should be avoided because of the costs associated with holding inventory in stock. Not only are profits on those items lost, but the money cannot be spent on more profitable items.

Summary

Florists need to take inventory regularly in order to ensure that they have all the supplies and merchandise necessary to run a profitable business, as well as for tax and insurance reasons. Monitoring the turnover rate will help the florist to determine how much of each item to stock.

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Lesson 5: Creating a Display

An attractive display in the window or the store is one of the best means that a florist can use to promote products. Good displays do not just happen. They must be carefully planned. Their purpose is to attract attention and encourage sales. Often a window display alone will give a prospective customer an impression of the shop and the kind of service it provides. To create an effective display, certain guidelines should be followed.

Procedures in Creating a Display

It is important to first select a theme. It should be a single idea, usually a holiday or a season. A theme can be based on certain merchandise and related items. Themes can also be based on current events. For example, during elections or political party conventions, a patriotic theme with a donkey or elephant could be used.

The seasons can be represented with appropriate colors for winter, spring, summer, or fall. Holidays are usually the easiest and most commonly used themes for displays.

Displays may also promote a special the store is conducting. If the store obtained a good buy on some baskets, for example, a display can be built around them.

After selecting the theme, choose the props and the merchandise to be promoted. Props are permanent items that are used in creating window and store displays. Stands are common props that help hold the merchandise at different heights. Stands can sometimes be as simple as stacking some boxes in the display. These boxes should then be draped or covered with material, foil, or paper. Other props include fountains, columns, seasonal figurines, screens, fireplace mantles, chairs, or even spinning wheels. Keeping a permanent collection of props is often beneficial. Wholesalers have many props that can be purchased. Props can be made using foam, core board, Styrofoam™, or poster board. Props can be rented or even borrowed. If a prop is borrowed from another business, give credit to that business in the display, e.g. "Spinning wheel courtesy of Alan's Antiques."

Drapes of material, paper, or foil can serve as a background for the display. They are often stapled or taped to the stand.

The merchandise promoted can be anything that will lend itself to the display and that the shop desires to sell. Use accessories to complement the theme of the display. Florists must be willing to sell whatever they display in the window, so beware of using something with which you do not wish to part.

If appropriate, include signs pricing the items offered for sale. Customers dislike having to ask how much something costs.

It is often helpful to make a rough drawing of how the display should be set up. A sketch helps the designer make the display according to plan. When setting up the display, however, it sometimes becomes obvious that the original idea is not going to work. If this happens, the designer must be flexible enough to change plans.

Designing a good display is somewhat like designing an arrangement since the same rules of design should be incorporated. Always include a focal point, for this one feature will attract the customer. The focal point needs to stand out from everything else in the display. Avoid placing it directly in the middle of the display.

Items included in the display should all be related. Keep the background very simple, preferably plain. If it is too bright or "busy," the background will detract from the main theme.

Place all the shorter items toward the front of the display with the taller items toward the back. A good practice is to walk past the display several times and look at it critically to see if it attracts your attention.

Make sure all of the colors are harmonious, and use a variety of shapes, sizes, and textures.

The next step is to actually set up or create the display. If a window display is planned, make sure the window is clean inside and out. Remember to check the lighting fixtures, too. A burned out light bulb is often difficult to change after the display is completed.

If merchandise and props need to be cleaned or painted, be sure to do so well ahead of time. Paint must be allowed to dry before handling. All merchandise needs to be clean and of good quality.

Prepare the background and floor of the display by covering them if necessary. Place the boxes or stands in position, then cover them with material, paper, or foil drapes. Take care that people walking by are not able to see the back side of the display.

Gather and prepare other props and accessories to be used. Foam core board may be used to create a background to which various things can easily be pinned. If using lights, make sure they accent and do not detract from the display.

Add other items related to the main theme. As always, their colors should contribute to the theme and harmonize with the other objects in the display.

Price tags should be hidden unless the item priced is part of a special or sales promotion.

Maintaining Display Areas

Once a display has been created, the designer's work does not end. Displays require maintenance, usually on a daily basis.

Check all live plants daily for watering needs. Remove any dead foliage or blooms. Keep the floors, display areas, and display coolers clean and free of dust. Clean all windows, especially display cooler doors, daily. Maintain a comfortable temperature in the sales area. Replace all burned out light bulbs. Keep painted surfaces fresh and free of chips.

Displays need to be changed often. Add new combinations of merchandise. If an item does not sell, place it in a different grouping, put it on sale, or store it away for a while.

Importance of Displays for Merchandising

Effective and attractive displays can help generate more sales. While customers are browsing or waiting to pick up orders, a well designed display can encourage them to purchase more. A good display should attract attention, arouse interest, inspire a desire to possess the product, and encourage its purchase.

Elements of a Good Display

Being able to evaluate a display after creating it is very important. When looking at the display critically, look for several elements.

- Is the display pleasing to the eye?
- Is the main theme easily noticed? Does it catch the eye?
- Is the display well lit?
- Are all items clean and in good condition?
- Are the colors complementary and pleasing to the eye? Do the colors complement and coordinate with the theme? For example, pastels are used for spring, brighter colors for summer, etc.
- Are the rules of color followed?
    - Use very bright and contrasting colors sparingly.
    - If very intense colors are used, keep the area small and the contrasting colors less bright.
    - Select colors that will complement the items displayed.
- Does the display adhere to tips of designing a display?
    - The display should arouse interest.
    - Do not use too many items that will compete for attention.

- All props should tie in with the featured product.

- Never mix different styles.

- If creating a window display with an open back, make it attractive both inside and outside the shop.

- Keep lights on in the display window after the shop is closed.

Safety Factors in Setting Up Displays

Several safety factors should be considered when designing a display. Add proper support for everything displayed. Make sure all electrical equipment and lights are safe and are not fire hazards. Use materials that are not flammable. Do not block shop entrances or exits with the display. Try to avoid using sharp edges or corners in the display.

Stocking and Displaying Merchandise

When opening a case of merchandise, be careful not to damage anything inside, especially when using a knife. Before displaying any piece of merchandise, calculate the item's retail price, clean and dust the item, and clean the shelves. Place newer items behind the older merchandise, and be careful not to place anything too close to the end of a shelf. Group similar products together, and use labels that can be easily read. Finally, clean up and throw away any boxes or other garbage, then put away any tools.

Summary

A well designed display is a valuable asset in attracting customers and selling merchandise. A good display incorporates the elements of design and is neat and clean.

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Lesson 6: Maintaining the Flower Shop

A customer's first impression when entering a flower shop is often the most lasting. It is therefore important for the shop to be neat and clean at all times.

The Importance of Maintenance

The floral shop must be maintained to keep it neat and clean, which gives customers a favorable impression when they first enter the shop. In addition to creating a good impression, a clean and well maintained shop is a safer environment for customers and employees alike. If debris is cleared from the floor, the chance of anyone slipping and falling is lessened. Keeping dust to a minimum also helps employees with allergies.

Maintaining the Display Area

To maintain the display area, several things must be done.

Floors must be kept clean. If the floors are carpeted, they should be vacuumed or swept daily. If they are wood, they should be polished daily.

All display areas and merchandise on display should be dusted.

All aisles should be cleared.

Check all lights to make sure none are burned out.

Window displays should be clean and free of dust, spider webs, or dead insects.

The following equipment should always be on hand to aid in cleaning. Paper towels and rags, window cleaner, furniture polish, a dust pan, a mop and broom, and a vacuum cleaner are all needed to clean and maintain the flower shop. The vacuum cleaner will prevent dust from settling, and its attachments will save on time and labor spent in cleaning.

Maintaining the Design Area

Maintain the design area by periodically cleaning the floor. Designers often throw stems and waste on the floor as they create arrangements. If this material is allowed to build up, it can create a safety hazard, so the stems and waste should be removed periodically.

Dust and dirt in the design area should be kept at a minimum. Surplus items are usually stored in the design room, and some of them may be difficult or impossible to clean once they have been soiled.

Maintaining the Cooler

The cooler is another area of the shop that must be kept clean, particularly since it often doubles as a display cooler that will be seen by customers. The bottom of the cooler, as well as the glass doors, should be cleaned inside and out daily.

If the cooler doubles as a display cooler, it should make a favorable impression on customers. If it is used solely as a storage cooler, it should be maintained for efficiency and easy access. In either case, dead and decaying plant materials must be removed from the coolers. Besides having a poor appearance, dead and decaying flowers and foliage generate ethylene gas. This gas causes the flowers stored in the coolers to begin early senescence, or aging.

Disposing of Plant Waste

Plant waste disposal can be a difficult task. Some shops have a bin or hole in which to sweep plant wastes. Depending on the area, some municipalities require separation of flower and foliage waste from wire, paper, etc. Keeping two different containers to sort the waste may be necessary.

Summary

All areas of the flower shop, including the display and design areas and the coolers, must be maintained to make a positive impression on customers, to create a good work environment for employees, and for safety reasons.

Credits

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Lesson 7: Advertising

Advertising is essential in running a successful business. One of the most important decisions florists must make is how to spend the money they have budgeted for advertising to obtain the best results.

Methods of Advertising

A flower shop can advertise in a number of different ways.

The very best form of advertisement is a happy customer.

By using the newspaper, the florist can time the message to the occasion. Newspaper ads are very flexible. Scattering several small ads throughout the paper is sometimes more effective than placing one large ad. Newspaper ads are more effective if they are run regularly to keep the florist's name in the public eye.

Spot announcements on the radio are also a good means of advertising. The best times to run commercials are just before or after popular programs, newscasts, and weather information.

Television is a very popular medium, but it may be too expensive for an individual flower shop. Floral wire services usually make good use of television's visual appeal.

The flower shop, store signs, and window displays are also a means of advertising. Depending on the location of the shop and its exterior, they can attract attention. People often stop to look at window displays, then enter the shop when something in the display interests them.

The signs on the sides of the delivery van need to be attractive. The van, too, needs to be well kept because it will advertise the shop everywhere it goes. A careful and courteous driver also reflects well on the shop.

Florists can also advertise through direct mailings by enclosing promotional literature with bills. Issuing a calendar with the shop's name and logo on it is an important year-long advertising tool. A mailing list of customers is important to maintain since it gives the florist a good base from which to start a direct mailing campaign. Seasonal promotions as well as notices of special sales and offers may be mailed out to customers.

The yellow pages of the telephone book are a form of advertising preferred by many florists, for customers often turn to the yellow pages to choose a florist.

Billboards may be seen by passing motorists. Individual florists do not usually advertise on billboards, but floral organizations do. A billboard message should be short and able to catch the motorist's eye. If it takes too long to read, it will not be read.

Some florists distribute pencils, calendars, and other items with their name and telephone numbers printed on them.

Most florists have business cards for individual designers to include with the arrangements. If customers are especially pleased with a particular arrangement, they may request that designer again.

Holding an open house in the flower shop is another important form of advertisement, especially during the Christmas season. Many florists find it to be a very profitable method of advertising and drawing people into their shop. A day is set aside for the open house, and seasonal arrangements in various price ranges are prepared. Refreshments are optional but will help to attract customers. Notices for the open house should be mailed to all regular customers, and an invitation should be printed in the local newspaper.

Being active in the community, belonging to such groups as the Lions Club, Jaycees, or Chamber of Commerce, giving talks, and sponsoring local events puts the florist and the shop in the public eye.

Ingredients of an Effective Print Ad

Several ingredients go into creating an effective print ad.

- Attracts attention

- Sparks interest
- Inspires customers to buy
- Reads simply and easily
- Uses the shop's name and logo
- Uses a good design
- Uses pictures that draw interest to the ad
- Varies in print size

Benefits of Advertising

Every business needs to advertise in some way. Shop owners cannot afford NOT to advertise. They must keep their names in the public eye. Even longtime customers need to be reminded of the shop's presence.

Summary

Every flower shop needs an advertising budget. The major decisions are how much to set aside for advertising and what method or methods would best represent the shop.

Credits

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